

Emotion Classification for SEP CV&DL

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Abstract

*The ABSTRACT*¹.

1. Introduction

Figure 1 depicts an overview of our time schedule for the final project.

The structure of this report is arranged as follows. Section 2 contains the related work of our research. Section 3 provides the datasets we used, the model architecture, and preliminary evaluation results of our model.

2. Related Work

3. Approach

3.1. Dataset

Firstly, for all the image data from the training dataset [1, 2], we filter out neutral instances from the original dataset, the emotion labels are denoted as 1 (Surprised), 2 (Fearful), 3 (Disgusted), 4 (Happy), 5 (Sad), and 6 (Angry) for simplicity. Afterward, we transform and resize the images to (64, 64).

3.2. Model Architecture

We implemented an emotion-classification model with 3 convolution layers.

We add a dropout layer to prevent overfitting. In order to find the best hyperparameter configuration (see Tab. 1 for details) of the model, we utilize the parameter grid from sklearn².

3.3. Preliminary Results

For evaluation, we use the metric accuracy.

Hyperparameter	Configuration
Learning rate	{0.1, 0.01, 0.001, 0.0001}
Batch size	{8, 16, 32, 64}
Dropout rate	{0.5}
Epoch	{20}
Early stopping	{True, False}
Patience	{5}

Table 1. Explored hyperparameter space for our model

¹Equal contributions listed by alphabetical order of surnames, see Sec. 4 for details.

²https://scikit-learn.org/stable/modules/generated/sklearn.model_selection.ParameterGrid.html

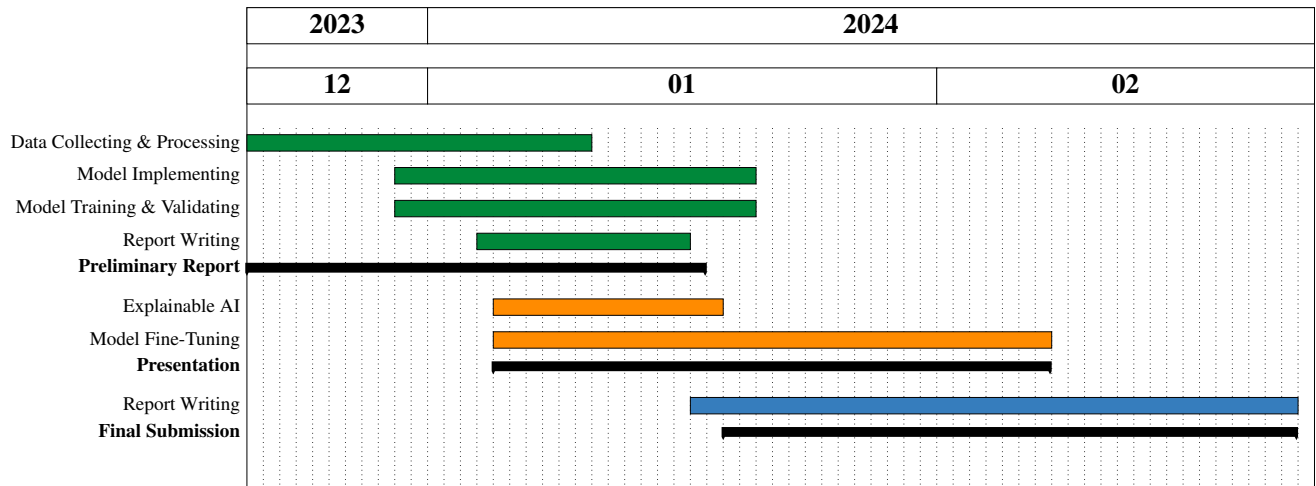


Figure 1. Overview of the time schedule for the final project

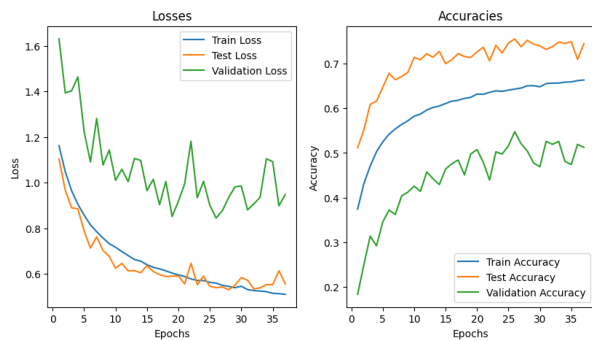


Figure 2. Empirical results in terms of the loss and accuracy on different training epochs

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Supplementary Material

4. Author Contributions

Every author did the literature research and contributed to the writing of the paper.

- **Tanja Jaschkowitz**
- **Leah Kawka** collected the training data, prepared dat-a-processing, implemented augmentation, Explainable AI & Video-green square
- **Mahdi Mohammadi**
- **Jiawen Wang** implemented the model architecture, training infrastructure, and optimization strategies.

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References

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- [2] Shan Li, Weihong Deng, and JunPing Du. Reliable crowdsourcing and deep locality-preserving learning for expression recognition in the wild. In *2017 IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 2584–2593. IEEE, 2017. 1