

開放平台軟體 期末報告

張友澤 李政憲 游登翔 張哲郡 劉彥麟

June 10, 2019

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, . . . , etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

• Introduction to your team

- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- **Input of your model**
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Methodology

Input of model

讀入MFCC向量特徵轉換後的.npy壓所檔，
將載入的train data與test data reshape為4個維度，
將train label 與 test label 類別變數轉為one-hot encoding，
即為欲輸入model的f所有資料

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- **Output of your model**
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

每個世代完成後，即輸出一HDF5檔案

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- **Each layer of your model**
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Methodology

Each layer of model

```
d0 = Input(shape=self.img_shape)
d1 = conv2d(d0, filters=32, f_size=2, stride=1, bn=True) 建立卷積層
d2 = maxpooling2d(d1, f_size=2, stride=2) 建立池化層
d3 = Dropout(0.25)(d2)Dropout層
d4 = flatten(d3) Flatten層
d5 = dense(d4, f_size=128, dr=True, lastLayer=False) 全連接層
d6 = dense(d5, f_size=5, dr=False, lastLayer=True) 全連接層
```

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- **How you save your model?**
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

使用save函式來儲存model至指定資料夾

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- **File size of your model**
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Methodology

File size of model

每個Model size為2.15 MB

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- **What's your loss functions, and why?**
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Methodology

loss functions and why

loss function 使用 'categorical_crossentropy'

因為用於多個分類，且目標值為分類格式(如:(1,0,0,0,0)、(0,1,0,0,0))，
所以選擇採用 categorical_crossentropy 作為損失函數

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- **What's your optimizer and the setting of hyperparameter?**

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Methodology

optimizer and setting of hyperparameter

optimizer採用'Adam'
metrics採用'accuracy'

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- **The size of your dataset should be larger than 1K**
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- **How you collect/build your dataset?**
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- **How many paired training samples in your dataset?**
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- **How many paired validating samples in your dataset?**
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- **How many paired testing samples in your dataset?**

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, . . . ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Experimental environment

CPU:

GPU:

RAM:

ROM:

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, . . . , etc.)
- **How many epochs you set for training?**
- Qualitative evaluation
- Quantitative evaluation

Experimental environment

How many epochs set for training

99 epochs

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- **Qualitative evaluation**
- Quantitative evaluation

Experimental environment

Qualitative evaluation

Outline

1 Introduction

- Introduction to your team
- Introduction to the problem you're trying to solve

2 Methodology

- Input of your model
- Output of your model
- Each layer of your model
- How you save your model?
- File size of your model
- What's your loss functions, and why?
- What's your optimizer and the setting of hyperparameter?

3 Dataset

- The size of your dataset should be larger than 1K
- How you collect/build your dataset?
- How many paired training samples in your dataset?
- How many paired validating samples in your dataset?
- How many paired testing samples in your dataset?

4 Experimental Evaluation

- Experimental environment (CPU, GPU, memory, ... ,etc.)
- How many epochs you set for training?
- Qualitative evaluation
- Quantitative evaluation

Experimental environment

Quantitative evaluation