

國立交通大學

資訊科學與工程研究所

碩士論文

基於卷積神經網路的論文自動生成技術

A CNN-based Automatic Thesis Generation Technique

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中華民國 106 年 9 月

# 基於卷積神經網路的論文自動生成技術

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# 基於卷積神經網路的論文自動生成技術

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## 摘 要

在大 AI、ML 時代，自己寫論文已經不再是個有效率的做法，因此我們提出了一套基於卷積神經網路的論文自動生成技術。

關鍵字：卷積神經網路、機器學習

# **A CNN-based Automatic Thesis Generation Technique**

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## **ABSTRACT**

In the era of Big AI and ML, it is not efficient to write thesis by yourself anymore so that we propose a CNN-based approach for automatic thesis generation.

Keywords: convolutional neural network, machine learning

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# Chapter 1

## Introduction

Here is the introduction.



# Chapter 2

## Background

Here is the background.

# Chapter 3

## Design

Here is the design.

### 3.1 Feature Extraction

### 3.2 Thesis Modeling

### 3.3 Thesis Generation

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**Algorithm 1** Get Maximum of Two Numbers

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```
1: procedure GETMAXIMUM( $a, b$ )  
2:   if  $a \geq b$  then  
3:     return  $a$   
4:   else  
5:     return  $b$ 
```

---

Figure 1: Pseudo Code of GetMaximum

# Chapter 4

## Implementation



Figure 2: TensorFlow's Logo

We implement the prototype on TensorFlow[1] platform. Figure 2 shows the logo of TensorFlow, and Figure 3 shows the code snippet of model training.

```
import tensorflow as tf

def train(total_loss, global_step):
    # Variables that affect learning rate.
    num_batches_per_epoch = NUM_EXAMPLES_PER_EPOCH / FLAGS.batch_size
    decay_steps = int(num_batches_per_epoch * NUM_EPOCHS_PER_DECAY)

    # Decay the learning rate exponentially.
    lr = tf.train.exponential_decay(INITIAL_LEARNING_RATE,
                                    global_step,
                                    decay_steps,
                                    LEARNING_RATE_DECAY_FACTOR,
                                    staircase=True)
    tf.summary.scalar('learning_rate', lr)
```

Figure 3: Code Snippet of Model Training

# Chapter 5

## Evaluation

Here is the evaluation.

### 5.1 Datasets

### 5.2 Experiment Design

### 5.3 Experimental Results

#### 5.3.1 Training Time

Table 1 lists the training time of different datasets.

Table 1: Training Time

Dataset	Training Time
A	1 hour
B	2 hours
C	3 hours
D	4 hours
E	5 hours

#### 5.3.2 Example of Generated Thesis

# Chapter 6

## Related Work

Here are the related works[2].

# Chapter 7

## Discussion

Some previous researches[3] worked on detecting the machine generated paper. However, to the best of our knowledge, all of them can not effectively detect the thesis generated by our system.

# Chapter 8

## Conclusion

Here is the conclusion.

# References

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