

Macau University of Science and Technology

Faculty of Innovation Engineering

Dept. of Engineering Science

(澳門科技大學創新工程學院工程科學系)

Thesis Proposal

(論文選題報告)

**Research and Development of Offline Handwritten
Signature Verification Algorithm based on Transformer**

Submitted by: 王茗琛

Student No.: 2230025907

Supervisor: 劉新

Abstract

This research deals with the supervisory control problem of discrete event systems. Use singular keywords. Keywords are separated by commas or semicolons, and there is often a period at the end.

The template can be used in online and offline ways. For the former (highly recommended), Overleaf (<https://www.overleaf.com>) is a collaborative cloud-based LaTeX editor used for writing, editing and publishing scientific documents, which is much easy to use and friendly.

For the latter, one can use Texstudio, which is a very popular yet free software package (<https://www.texstudio.org/>). When using Texstudio, the compiling command is XeLatex. To make Texstudio work, one need to first install Miktex, see <https://miktex.org/>. We happen to find, rather rarely, that a successful compiling may depend on the version of Texstudio. In any case, we recommend the latest version of Texstudio.

keywords: Discrete event system; supervisory control; fault diagnosis.

摘要

中文摘要一般 300 到 500 字且使用繁體。使用西文方式下的標點符號。比如, 像這樣。若對模板使用有任何問題, 可 email 至 zhwli@ieee.org。

關鍵詞: 一般使用 3-5 個關鍵詞, 中間用分號隔開。

Table of Contents

Abstract	i
摘要.	ii
Table of Contents	iii
1 Introduction	1
1.1 Research Background	1
1.2 Motivation	1
1.3 Research Objectives	1
2 Literature Review	1
3 Xxxx (your research topic)	2
3.1 xxxxxx	2
3.2 xxxxxx	2
4 XXXX (another topic if necessary)	3
4.1 Algorithm	3
4.2 xxxx	4
4.2.1 xxxx	4
5 Schedule for the thesis	4
6 Publications	4
References	5

1. Introduction

1.1 Research Background

XXXXXX.

Fang develops a method for supervisor synthesis ... [20].

1.2 Motivation

XXXXXX.

1.3 Research Objectives

XXXXXX.

2. Literature Review

XXXXXX.

We give some examples of how to draw figures.

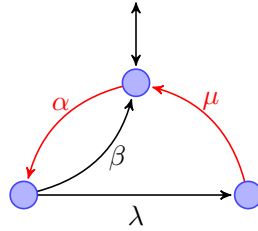


Figure 1: This is an automaton.

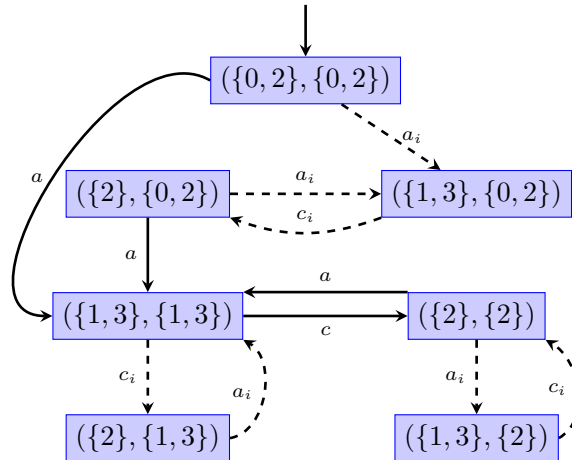


Figure 2: Indicator automaton and verifier of the NFA in Fig. 1

3. Xxxx (your research topic)

3.1 xxxxxx

We give some examples of how to make tables.

The table title is at the top of the table.

Table 1: A table.

Class ^a	γ_1	γ_2^b	$\langle\gamma\rangle$	G	$ f $	θ_c
BL Lacs	5	36	7	−4.0	1.0×10^{-2}	10°
FSRQs	5	40	11	−2.3	0.5×10^{-2}	14°

Table 2: Another table.

i	x_i	n_i	i	x_i	n_i
1	0.5~0.64	1	8	1.48~1.62	53
2	0.64~0.78	2	9	1.62~1.76	25
3	0.78~0.92	9	10	1.76~1.90	19
4	0.92~1.06	26	11	1.90~2.04	16
5	1.06~1.20	37	12	2.04~2.18	3
6	1.20~1.34	53	13	2.18~2.38	1
7	1.34~1.48	56			

3.2 xxxxxx

xxxxxx.

Formal expression is very important.

Example 1:

$$e^{\pi i} + 1 = 0 \tag{1}$$

Example 2:

$$a^2 + b^2 = c^2 \tag{2}$$

If no equation number is needed, we can use double dollars at the beginning and end of the equation.

$$\cos x + \sin y = 1.$$

Example 3:

$$\binom{n}{m} = \binom{n}{n-m} = C_n^m = C_n^{n-m} \tag{3}$$

Example 4:

$$(a+b)^3 = (a+b)(a+b)^2 = a^3 + 3a^2b + 3ab^2 + b^3 \tag{4}$$

Here are more examples of mathematics equations or expression.

$$x = a_0 + \frac{1}{a_1 + \frac{1}{a_2 + \frac{1}{a_3 + \frac{1}{a_4}}}} \quad (5)$$

$$\frac{(x_1x_2) \times (x_1'x_2')}{(y_1y_2y_3y_4)}$$

$$P\left(A=2\left|\frac{A^2}{B}>4\right.\right)$$

$$M=\begin{bmatrix}\frac{5}{6} & \frac{1}{6} & 0 \\ \frac{5}{6} & 0 & \frac{1}{6} \\ 0 & \frac{5}{6} & \frac{1}{6}\end{bmatrix}$$

$$M = \begin{matrix} & x & y \\ \begin{matrix} A \\ B \end{matrix} & \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \end{matrix}$$

$$f(n)=\begin{cases}n/2&\text{if }n\text{ is even}\\-(n+1)/2&\text{if }n\text{ is odd}\end{cases}$$

$$\binom{n}{r} = \frac{n!}{r!(n-r)!}$$

Here are some logic expressions:

$$(\forall s \in \overline{K})(\forall \sigma \in \Sigma)(\forall s' \in \overline{K})s\sigma \in L(G) \ \& \ s'\sigma \in L(G) \ \& \ Ps = Ps' \implies s' \in \overline{K}.$$

For more details about mathematics equations or expressions, see <https://en.wikibooks.org/wiki/LaTeX/Mathematics>.

4. XXXX (another topic if necessary)

4.1 Algorithm

An example of the Algorithm 1.

Algorithm 1: Control policy construction

Input: Control parameter r_i , time series $Backgrd(T_i)=T_1, T_2, \dots, T_n$ and similarity threshold θ_r

Output: Control policy $con(r_i)$

```
1  $con(r_i) = \Phi$ ;  
2 for  $j = 1; j \leq n; j \neq i$  do  
3   float  $maxSim = 0$ ;  
4    $r^{maxSim} = null$ ;  
5   while not end of  $T_j$  do  
6     compute Jaro( $r_i, r_m$ ); % here are the commentary texts  
7      $con(r_i) = con(r_i) \cup r^{maxSim}$ ;  
8 return  $con(r_i)$ ;
```

4.2 xxxx

4.2.1 xxxx

5. Schedule for the thesis

6. Publications

References

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For a paper in a journal, the title of the journal should be in *Italics*. The first letter of each word should be capitalized. Volume and Issue numbers should be given. There is a blank space between “vol” and “14” in the above. Note that two continuous hyphens in \LaTeX generates “–”.

- [2] J. B. Xiong, R. Ma, L. Chen, Y. L. Tian, Q. Li, X. M. Liu and Z. Q. Yao, “A personalized privacy protection framework for mobile crowdsensing in IIoT,” *IEEE Transactions on Industrial Informatics*, vol. 16, no. 6, pp. 4231–4241, Jun. 2020.
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[This is a book or monograph.](#)

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[This is a degree thesis.](#)