#### CITY UNIVERSITY OF HONG KONG

香港城市大學

A Title Sample

一個標題 示例

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in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
哲學博士學位

by

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### **Abstract**

AAA

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### Acknowledgements

It has been a long and thrilling journey, with unimaginable challenges, both academic and social, since I came to CityU in the peaceful summer of 2016.

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# **List of Algorithms**

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# **Symbols**

 $\overrightarrow{OP}$  Displacement of the micropipette tip P to the origin O (a,b,c) Coordinates of  $\overrightarrow{OP}$  in the world coordinate frame (O,x,y,z)

## **Acronyms**

**PBS** phosphate buffered saline

NCBI National Center for Biotechnology Information

**RNA** ribonucleic acid

**DNA** deoxyribonucleic acid

mRNA messenger RNA

**cDNA** complementary DNA

**CRISPR** clustered regularly interspaced short palindromic repeats

**TGV** train à grande vitesse

### Chapter 1

### Introduction

English. Русский<sup>1</sup>. Español.

Phosphate buffered saline (PBS), National Center for Biotechnology Information (NCBI), ribonucleic acid (RNA), deoxyribonucleic acid (DNA), messenger RNA (mRNA), complementary DNA (cDNA), clustered regularly interspaced short palindromic repeats (CRISPR), and train à grande vitesse (TGV).

PBS, NCBI, RNA, DNA, mRNA, cDNA, CRISPR, and TGV.

#### 1.1 Background

Inline math  $\vec{y} = f(\vec{x})$ 

$$\vec{E}_{\vec{u}_{\vec{n}}} \tag{1.1}$$

$$F(x,y) = \int_{-\infty}^{x} \int_{-\infty}^{y} f(u,v) \, du dv$$
 (1.2)

<sup>&</sup>lt;sup>1</sup>Need to use FreeSerif or Times New Roman font. newtxtext and newpxtext don't contain Cyrillic.

#### **Chapter 1 Introduction**

$$F_X(x) = P(X \leqslant x) = P(X \leqslant x, Y < +\infty) \tag{1.3}$$

$$= \int_{-\infty}^{x} \int_{-\infty}^{+\infty} f(u, v) \, \mathrm{d}u \mathrm{d}v \tag{1.4}$$

$$= \int_{-\infty}^{x} \left[ \int_{-\infty}^{+\infty} f(u, v) \, \mathrm{d}v \right] \mathrm{d}u \tag{1.5}$$

$$= \int_{-\infty}^{x} f_X(x) \, \mathrm{d}u \tag{1.6}$$

$$F_{X}(x) = P(X \leqslant x) = P(X \leqslant x, Y < +\infty)$$

$$= \int_{-\infty}^{x} \int_{-\infty}^{+\infty} f(u, v) \, du dv$$

$$= \int_{-\infty}^{x} \left[ \int_{-\infty}^{+\infty} f(u, v) \, dv \right] du$$

$$= \int_{-\infty}^{x} f_{X}(x) \, du$$
(1.7)

$$R_{11} = \cos \alpha \cos \gamma - \cos \beta \sin \alpha \sin \gamma \tag{1.8a}$$

$$R_{12} = \sin \alpha \cos \gamma + \cos \beta \cos \alpha \sin \gamma \tag{1.8b}$$

$$R_{13} = \sin \beta \sin \gamma \tag{1.8c}$$

$$R_{21} = -\cos\alpha\sin\gamma - \cos\beta\sin\alpha\cos\gamma \tag{1.8d}$$

$$R_{22} = -\sin\alpha\sin\gamma + \cos\beta\cos\alpha\cos\gamma \tag{1.8e}$$

$$R_{23} = \sin \beta \cos \gamma \tag{1.8f}$$

$$R_{31} = \sin \beta \sin \alpha \tag{1.8g}$$

$$R_{32} = -\sin\beta\cos\alpha\tag{1.8h}$$

$$R_{33} = \cos \beta \tag{1.8i}$$

$$a'' = \frac{\cos \alpha \cos \gamma - \cos \beta \sin \alpha \sin \gamma}{\cos \theta} a + \frac{\sin \alpha \cos \gamma + \cos \beta \cos \alpha \sin \gamma}{\cos \theta} b + \frac{\sin \beta \sin \gamma}{\cos \theta} c \quad (1.9a)$$

$$b'' = a \left( -\cos\alpha\sin\gamma - \cos\beta\sin\alpha\cos\gamma \right)$$
$$+ b \left( -\sin\alpha\sin\gamma + \cos\beta\cos\alpha\cos\gamma \right)$$
$$+ c \left( \sin\beta\cos\gamma \right) \quad (1.9b)$$

$$c'' = (\cos \beta - \sin \theta \sin \beta \sin \gamma) c$$

$$- (-\sin \beta \cos \alpha - \sin \theta (\sin \alpha \cos \gamma + \cos \beta \cos \alpha \sin \gamma)) b$$

$$+ (\sin \beta \sin \alpha - \sin \theta (\cos \alpha \cos \gamma - \cos \beta \sin \alpha \sin \gamma)) a \quad (1.9c)$$

#### 1.2 Statement of Problems

### 1.3 Research Objectives

In brief, the research objectives of this study are enumerated as follows:

- 1. AAA;
- 2. BBB;
- 3. CCC.

#### 1.4 Methodologies and Significance

The major methodologies and their significance are discussed below.

#### **Chapter 1 Introduction**

- 1. AAA.
- 2. BBB.
- 3. CCC.

自定義編號和 siunitx 宏包

- 1 你
- 2 我
- 3 他
- 4 1.0 mm/kg

### 1.5 Summary

# Chapter 2

### **Literature Review**

### 2.1 Introduction

[1–7]. [8–10].

AAABBBCCC

### 2.2 Summary



Fig. 2.1 caption

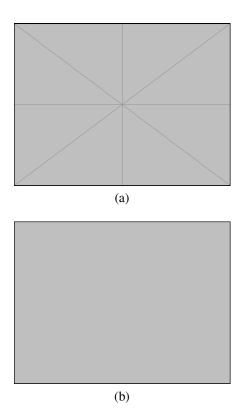


Fig. 2.2 caption.

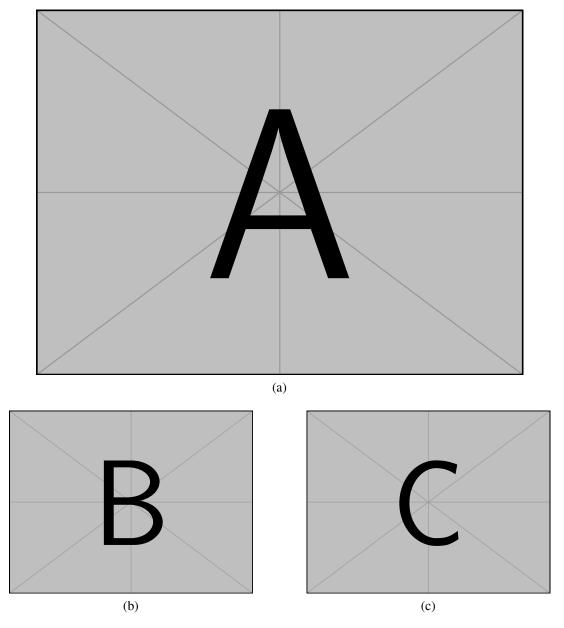


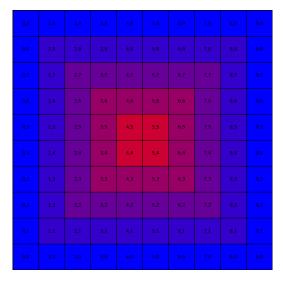
Fig. 2.3 caption

# **Chapter 3**

### **Your Main Work**

#### 3.1 Introduction

Chapter 2 reviews the literature on the following subjects ...



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 1.8
 2.8
 3.8
 4.8
 5.8
 6.8
 7.8
 8.8
 9.8

 0.7
 1.7
 2.7
 3.7
 4.7
 5.7
 6.7
 7.7
 8.7
 9.7

 0.0
 1.6
 2.6
 3.0
 4.6
 5.6
 6.6
 7.6
 8.6
 9.6

 0.5
 1.5
 2.5
 3.5
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 5.5
 6.5
 7.5
 8.5
 9.5

 0.4
 1.4
 2.4
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 7.4
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 8.1
 9.1

 0.0
 1.0
 2.0
 3.0
 4.0
 5.0
 6.0
 7.0
 8.0
 9.

Fig. 3.1 caption.

Fig. 3.2 caption.

### 3.2 Conclusions

Table 3.1 表格

a	b	c	d	e
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

Table 3.2 The Skewing Angles  $(\beta)$  for  $Mu(H) + X_2$  and Mu(H) + HX  $^a$ 

	$H(Mu) + F_2$	$H(Mu) + Cl_2$
$\beta(H)$	80.9°b	$83.2^{\circ}$
$\beta(Mu)$	$86.7^{\circ}$	87.7°

 $<sup>^{</sup>a}\,$  for the abstraction reaction, Mu + HX  $\rightarrow$  MuH + X.

Table 3.3 Alphabet

A2 A3 A1	$B^1$	$\mathbb{C}^2$
D	Е	F
G	Н	Ι

<sup>&</sup>lt;sup>1</sup> B1

<sup>&</sup>lt;sup>b</sup> 1 degree =  $\pi/180$  radians.

<sup>&</sup>lt;sup>2</sup> C2

#### 3.2 Conclusions

Table 3.4 一個跨頁的表格

First column	Second column	Third column
One <sup>a</sup>	abcdef ghjijklmn	123.456778
One <sup>b</sup>	abcdef ghjijklmn	123.456778
One	abcdef ghjijklmn	123.456778

Continued on next page

#### **Chapter 3 Your Main Work**

Table 3.4 – continued from previous page

First column	Second column	Third column	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
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One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	
One	abcdef ghjijklmn	123.456778	

Continued on next page

#### 3.2 Conclusions

Table 3.4 – continued from previous page

First column	Second column	Third column
One	abcdef ghjijklmn	123.456778

<sup>&</sup>lt;sup>a</sup> test test test test test test test

Source: Made up by daleif

b test2

## **Chapter 4**

## **Experiments**

項籍者,下相人也,字羽。初起時,年二十四。其季父項梁,梁父即楚將 項燕,爲秦將王翦所戮者也。項氏世世爲楚將,封於項,故姓項氏。

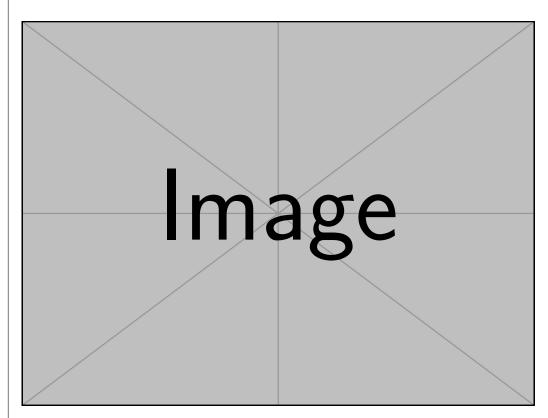


Fig. 4.1 這是一個測試

項籍少時,學書不成,去學劍,又不成。項梁怒之。籍曰:「書足以記名姓 而已。劍一人敵,不足學,學萬人敵。」於是項梁乃教籍兵法,籍大喜,略 知其意,又不肯竟學。項梁嘗有櫟陽逮,乃請蘄獄掾曹咎書抵櫟陽獄掾司 馬欣,以故事得已。項梁殺人,與籍避仇於吳中。吳中賢士大夫皆出項梁 下。每吳中有大繇役及喪,項梁常爲主辦,陰以兵法部勒賓客及子弟,以 是知其能。秦始皇帝游會稽,渡浙江,梁與籍俱觀。籍曰:「彼可取而代 也。」梁掩其口,曰:「毋妄言,族矣!」梁以此奇籍。籍長八尺餘,力能扛 鼎,才氣過人,雖吳中子弟皆已憚籍矣。

秦二世元年七月,陳涉等起大澤中。其九月,會稽守通謂梁曰:「江西皆 反,此亦天亡秦之時也。吾聞先即制人,後則爲人所制。吾欲發兵,使公 及桓楚將。」是時桓楚亡在澤中。梁曰:「桓楚亡,人莫知其處,獨籍知之 耳。」梁乃出,誡籍持劍居外待。梁復入,與守坐,曰:「請召籍,使受命 召桓楚。」守曰:「諾。」梁召籍入。須臾,梁眴籍曰:「可行矣!」於是籍 遂拔劍斬守頭。項梁持守頭,佩其印綬。門下大驚,擾亂,籍所擊殺數十 百人。一府中皆慴伏,莫敢起。梁乃召故所知豪吏,諭以所爲起大事,遂 舉吳中兵。使人收下縣,得精兵八千人。梁部署吳中豪傑爲校尉、候、司 馬。有一人不得用,自言於梁。梁曰:「前時某喪使公主某事,不能辦,以 此不任用公。」眾乃皆伏。於是梁爲會稽守,籍爲裨將,徇下縣。

廣陵人召平於是爲陳王徇廣陵,未 欲立嬰便爲王,異軍蒼頭特起。陳嬰母 彊立嬰爲長,縣中從者得二萬人。少年 亦以兵屬焉。凡六七萬人,軍下邳。

能下。聞陳王敗走,秦兵又且至,乃 謂嬰曰:「自我爲汝家婦,未嘗聞汝先 渡江矯陳王命,拜梁爲楚王上柱國。古之有貴者。今暴得大名,不祥。不 曰:「江東已定,急引兵西擊秦。」項 如有所屬,事成猶得封侯,事敗易以 梁乃以八千人渡江而西。聞陳嬰已下東一亡,非世所指名也。」嬰乃不敢爲王。 陽,使使欲與連和俱西。陳嬰者,故東 謂其軍吏曰:「項氏世世將家,有名於 陽令史,居縣中,素信謹,稱爲長者。楚。今欲舉大事,將非其人,不可。我 東陽少年殺其令,相聚數千人,欲置 倚名族,亡秦必矣。」於是眾從其言, 長,無適用,乃請陳嬰。嬰謝不能,豫以兵屬項梁。項梁渡淮,黥布、蒲將軍 道。」乃進兵擊秦嘉。秦嘉 軍敗,亡走胡陵。項梁乃 軍敗走,追之至胡陵。嘉 引兵入薛,誅雞石。項梁

當是時,秦嘉已立景 還戰一日,嘉死,軍降。前使項羽別攻襄城,襄 駒爲楚王,軍彭城東,景駒走死梁地。項梁已并 城堅守不下。已拔,皆阬 欲距項梁。項梁謂軍吏 秦嘉軍,軍胡陵,將引 之。還報項梁。項梁聞陳 曰:「陳王先首事,戰 軍而西。章邯軍至栗,項 王定死,召諸別將會薛 不利,未聞所在。今秦嘉 梁使別將朱雞石、餘樊君 計事。此時沛公亦起沛, 倍陳王而立景駒,逆無 與戰。餘樊君死。朱雞石 往焉。

#### Introduction 4.1

Listing 4.1 My C-Code

```
int main() {
  printf("hello, world");
2
  return 0;
```

Reference to Listing 4.1.

#### **Experimental Results** 4.2

滄海月明珠有淚,藍田日暖玉生煙。 此情可待成追憶,只是當時已惘然。

#### 4.2.1 **Some Results**

### 微信圖標 ❤️ CV cv research gate RG overleaf 8 orcid **(D** orcid (D)

#### Algorithm 1 The Bellman-Kalaba algorithm

```
1: procedure BellmanKalaba(G, u, l, p)
         for all v \in V(G) do
 2:
             l(v) \leftarrow \infty
 3:
         end for
 4:
         l(u) \leftarrow 0
 5:
         repeat
 6:
             for i \leftarrow 1, n do
 7:
 8:
                  min \leftarrow l(v_i)
                  for j \leftarrow 1, n do
 9:
                       if min > e(v_i, v_j) + l(v_j) then
10:
                           min \leftarrow e(v_i, v_j) + l(v_j)
11:
                           p(i) \leftarrow v_i
12:
                       end if
13:
14:
                  end for
15:
                  l'(i) \leftarrow min
             end for
16:
             changed \leftarrow l \neq l
17:
             l \leftarrow l
18:
         until \neg changed
19:
20: end procedure
21: procedure FINDPATHBK(v, u, p)
         if v = u then
22:
              Write v
23:
         else
24:
25:
             w \leftarrow v
             while w \neq u do
26:
27:
                  Write w
28:
                  w \leftarrow p(w)
29:
             end while
         end if
30:
31: end procedure
```

open access 8

#### 4.2.2 Discussion

#### 4.3 Conclusions

# **Chapter 5**

## **Conclusions**

- 5.1 Summary
- **5.2** Future Work

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# Appendix A

# **Research Output**

1. AAA

# Appendix B

### **Curriculum Vitae**

Personal Data

Name: PAN Fei

Date of birth: January 1, 1000