





## University of Bordeaux

### Internship Report

Master of Software Engineering (2013 - 2015)

# Design and programming of automatic classification methods applied to biological images

Student: LE Van Linh  ${\it Supervisor:} \\ {\it Prof. Marie BEURTON-AIMAR} \\$ 

## Acknowledgements

First of all, I would like to express my deepest gratitude to my supervisor Madame Marie BEURTON-AIMAR for her reception, guide and support during the planning and development of my internship. I would like to thank the staffs in LaBRI, who supported for technique and gave me a professional work environment.

I would also like to thank all professors in University of Bordeaux and PUF-HCM, who imparted a lot of knowledge to learning and researching. I would also like to thank the dean of IT-DLU, who allowed me joined in this course. Finally, I would like to thank my family and colleague for their support and encouragement through my study.

#### Abstract

Image processing is a field that has many application in life. It can be from the usual application to the application in medicine or cosmology. To obtain the best result, all most of applications must follow two processes: Firstly, we involve primitive operations such as reduce noise, contrast enhancement or image sharpening. Secondly, we can apply the segmentation, description the objects to a form suitable for application process and classification of individual object.

The goal of project is built a program with full functions about image processing. During my internship at LaBRI, my task is studying the architecture and program of last application, what was developed by NGUYEN Hoang Thao. I also develop an algorithm to preprocessing image, programming of automatic classification methods applied to biological images and integrated into last program. Besides, we also debug the code and write the documentation for the next development.

## Contents

1	Introduction	<b>4</b>
	1.1 Overview about PUF	. 4
	1.2 Overview about LaBRI	. 4
2	Theorical base	5
	2.1 Overview	. 5
	2.2 Classical segmentation	. 5
3	Implementation	6
	3.1 Software architecture	. 6
	3.2 Preprocessing image	. 6
	3.3 Automatic classification	
	3.4 Result	. 6
1	Conclusion	7

# List of Figures

## Introduction

introduction chapter

- 1.1 Overview about PUF
- 1.2 Overview about LaBRI
- 1.3 Overview about the problem

## Theorical base

## 2.1 Overview

Overview...

## 2.2 Classical segmentation

# Implementation

### 3.1 Software architecture

about architecture of IMP software....

## 3.2 Preprocessing image

about clear the yellow grid...

#### 3.3 Automatic classification

about methods

### 3.4 Result

result...

# Conclusion

about conclusion