University of Bordeaux

Internship Report

Master of Software Engineering (2013 - 2015)

Design and programming of automatic classification methods applied to biological images

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July 15, 2015

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.

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Introduction

1.1 Pôle Universitaire Français

The Pôle Universitaire Français (PUF) was created by the intergovernmental agreement of VietNam and France in October 2004. With ambition is building a linking program between the universities in VietNam and the advanced programs of universities in France. There are two PUF's center in VietNam: Pôle Universitaire Français de l'Universite Nationalé du Vietnam - Ha Noi located in Ha Noi capital and Pôle Universitaire Français de l'Universite Nationalé du Vietnam - Ho Chi Minh Ville located in Ho Chi Minh city.

1.1.1 Pôle Universitaire Français de l'Universite Nationalé du Vietnam - Ha Noi

Pôle Universitaire Français de l'Universite Nationalé du Vietnam - Ha Noi (PUF-HN) is regarded as a nursery for the linking program, it support on administrative procedure and logistics for the early year of program.
About administration, PUF-HN directly under Institut Francophone International (IFI), which was created by VietNam National University at HaNoi in 2012.

1.1.2 Pôle Universitaire Français de l'Universite Nationalé du Vietnam - Ho Chi Minh Ville

Pôle Universitaire Français de l'Universite Nationalé du Vietnam - Ho Chi Minh Ville (PUF-HCM) is a department of VietNam National Univeristy at Ho Chi Minh city. From the first year of operations, PUF-HCM launched the quality training programs from France in VietNam. With target, bring the programs which designed and evaluated by the international standards for Vietnamese student. PUF-HCM always strive in our training work.
So far, PUF-HCM have five linking programs with the universities in France, and the programs are organized into the subjects: Commerce, Economic, Management and Informatics. In detail:

- Bachelor and Master of Economics : linking program with University of Toulouse 1 Captiole
- Bachelor and Master of Informatics: linking program with University of Bordeaux and University of Paris 6.

The courses in PUF-HCM are provided in French, English and Vietnamese by both Vietnamese and French professors. The highlight of the programs are inspection and diploma was done by the French universities.

1.2 Laboratoire Bordelais de Recherche en Informatique

The Laboratoire Bordelais de Recherche en Informatique (LaBRI) is a research unit associated with the CNRS (URM 5800), the University of Bordeaux and the Bordeaux INP. Since 2002, it has been the partner of Inria. It has significantly increased in staff numbers over recent years. In March 2015, it had a total of 320 members including 113 teaching/research staff (University of Bordeaux and Bordeaux INP), 37 research staff (CNRS and Inria), 22 administrative and technical (University of Bordeaux, Bordeaux INP, CNRS and Inria) and more than 140 doctoral students and post-docs. The LaBRI's missions are: research (pure and applied), technology application and transfer and training.
Today the members of the laboratory are grouped in six teams, each one combining basic research, applied research and technology transfer:

- Combinatorics and Algorithmic
- Image and Sound
- Formal Methods
- Models and Algorithms for Bio-informatics and Data Visualisation
- Programmiing, Networks and Systems
- Supports and Algorithms for High Performance Numerical Applications

1.3 Overview about the problem

Chapter 2

Theorical base

2.1 Overview

Overview...

2.2 Classical segmentation

Chapter 3

Implementation

3.1 Software architecture

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3.2 Preprocessing image

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3.3 Automatic classification

about methods

3.4 Result

result...

Chapter 4

Conclusion

about conclusion