

**DEVELOPMENT OF EFFICIENT PRIVACY-PRESERVATION
ALGORITHMS**

BOWONSAK SRISUNGSITTISUNTI

**DOCTOR OF PHILOSOPHY
IN COMPUTER ENGINEERING**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

**GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
JUNE 2014**

**DEVELOPMENT OF EFFICIENT PRIVACY-PRESERVATION
ALGORITHMS**

BOWONSAK SRISUNGSITTISUNTI

**A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN COMPUTER ENGINEERING**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

GRADUATE SCHOOL, CHIANG MAI UNIVERSITY

JUNE 2014

DEVELOPMENT OF EFFICIENT PRIVACY-PRESERVATION ALGORITHMS

BOWONSAK SRISUNGSITTISUNTI

THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN COMPUTER ENGINEERING

Examination Committee:

Naiyana Sahavechaphan.....Chairman

(Dr. Naiyana Sahavechaphan)

Sanpawat Kantabutra.....Member

(Assoc. Prof. Dr. Sanpawat Kantabutra)

Juggapong Natwichai.....Member

(Assoc. Prof. Dr. Juggapong Natwichai)

Pruet Boonma.....Member

(Dr. Pruet Boonma)

T. Thaiupathump.....Member

(Assoc. Prof. Dr. Trasapong Thaiupathump)

Advisory Committee:

Juggapong Natwichai.....Advisor

(Assoc. Prof. Dr. Juggapong Natwichai)

Pruet Boonma.....Co-advisor

(Dr. Pruet Boonma)

T. Thaiupathump.....Co-advisor

(Assoc. Prof. Dr. Trasapong Thaiupathump)

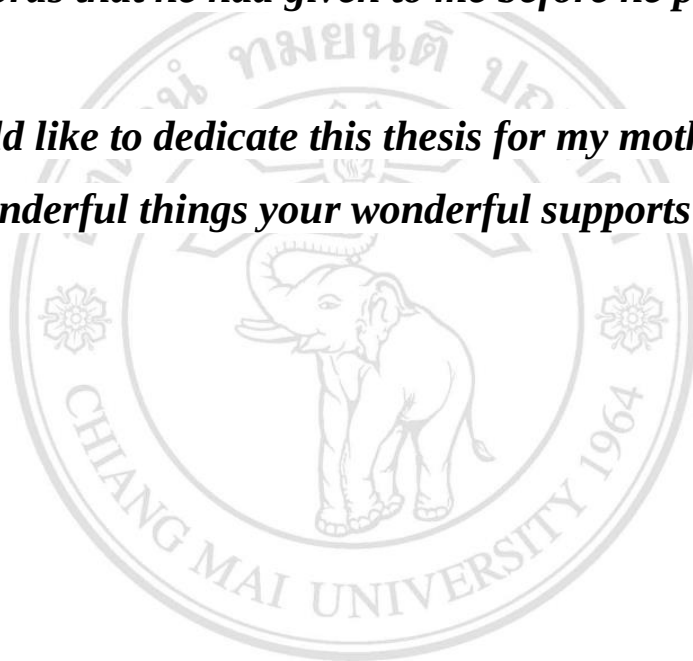
18 June 2014

Copyright © by Chiang Mai University

To my father and mother,

I would like to dedicate this thesis to my father because of some inspiring words that he had given to me before he passed away.

And, I would like to dedicate this thesis for my mother because of all the wonderful things your wonderful supports all the time.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

ACKNOWLEDGEMENTS

First, I would like to thank Associate Professor Juggapong Natwichai who deserves all of the credits in advising me. Also, many thanks go to my friends in Data Engineering and Network technology Laboratory, who helped reading and commenting this work, and gave many valuable suggestions. Also, the appreciation goes to my wife, and the rest of my family, who always support my studying throughout the course. Finally, I would like to thank Computer Engineering Department of Chiang Mai University, without the opportunity that this place gives this thesis would not be possible at all.

Bowonsak Srisungsittisunti

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved