

Thesis Preparation Guidelines

For

*Bachelor of Information and Communication Technology Honors
Degree Program*

Faculty of Technology
Rajarata University of Sri Lanka



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1. General Instructions

1.1. Number of Copies of the final bounded dissertation

Student must submit **One (01)** printed copy and **One (01)** soft copy in CD/DVD format of the final bounded dissertation to the Head of the department. The printed copy shall become a property of the Library of the Faculty of Technology. The printed copy should be signed by the student(s), the supervisor(s) and the Head of the Department. If a student wants to keep a printed copy of his dissertation in his possession, he can submit an additional printed copy. The additional copy will be returned to the student with the signature of the Head of Department.

1.2. Paper

Each copy of the dissertation shall be on good quality A4-sized clear white paper having at least 75 gsm. One type of paper must be used throughout the dissertation. However, paper of different quality may be used for figures, photographs, maps, etc.

Note: It is not essential to print a hard copy of the dissertation with colors unless the colors of figures or tables describe specific information.

1.3. Binding

Draft version of the Dissertation: The draft version of the dissertation to be submitted to the examiners should be in form of soft copy.

Final Submission of the Dissertation: The final corrected copy of the dissertation must be free from typographical, grammatical and other errors when submitted. After making the alterations mentioned by the examiners, one (01) copy of the dissertation should be hardbound with the *maroon color*.

Spine: The shortened name of the degree and the year submitted should be indicated at the spine as depicted in **Appendix B**. The short name of the degree should be mentioned at 20mm from the top of the spine. Lettering on spine should be in GOLD.

1.4. Language

You are free to use either British (UK) English or American English. However, consistency must be retained throughout the dissertation. i.e. never mix British and American styles of spelling, etc.

Be aware that British and American English do not only differ in the spelling, but also in the use of some prepositions and phrases.

The students are free to get assistance in language corrections from a knowledgeable person.

1.5. Dissertation Submission Checklist

A checklist is provided here to confirm whether you have gone in correct pathway.

#	Item	Done / Not
1	Have I used Times New Roman as my font in the thesis?	
2	Is every page of the dissertation correctly numbers?	
3	Is the pagination continuous? Are all pages included?	
4	Is the placement of page numbers on the bottom right edge throughout the dissertation?	
5	Do the preliminary pages (title page to list of abbreviations) number with lower case roman numerals? and the appendices with uppercase roman numerals?	
6	Are the margins 1' in three sides and 1.5' in the left side?	
7	Are you consistent with your language (either British English or American English)?	
8	Are the spellings, grammar and punctuation being checked?	
9	Have I started all your chapters from a new page?	
10	Have I followed the instructions when writing headings and sub-headings?	
11	Are all the tables and figures numbers and with a caption?	
12	Have I use the appropriate referencing style?	
13	Are all the references included in the body of the dissertation included in the reference list and vice versa?	
14	Is the list of tables and list of figures containing all the tables and figures included in the dissertation?	
15	Is the Table of Content including all the chapters, main headings and subheadings with correct page numbers?	
16	Is the title on the abstract is same as that on the title page?	
17	Have I filled the declaration form and taken signatures of my supervisors to it?	
18	Have I prepared an abstract to be submitted to Annual Undergraduate Research Session?	

2. Dissertation Formatting and Styles

2.1. Page Format and Margins

The left margin of a page should be 1.25 inches and 1 inch in all other sides. The draft version of the dissertation to be submitted to the examiners should be word processed and single sided. One and a half (1.5) line spacing is required except abstract, tables and indented quotations where single line spacing may be used. The space after a paragraph should be 6 points. Candidates may choose an appropriate spacing for the appendices.

2.2. Pagination

Pages should be numbered consecutively throughout the dissertation.

Preliminary pages (i.e., title page, statement of declaration, abstract, acknowledgements, table of contents, list of figures, list of tables and list of abbreviations) that precede the main text should be numbered with lower case roman numerals beginning with one (i).

Appendices that follow the list of references should be numbered with upper case roman numerals starting with one (I).

Number the main text consecutively beginning with the Arabic number one (1).

All page numbers should be placed on the bottom center of the page.

2.3. Page/ Paragraph Breaks

A new chapter must start on a new page. A section/ subsection or a paragraph should not begin on the last line of a page.

2.4. Headings

All chapters and their subsections must be numbered and titled. Use numerals up to three levels and use bold and/or italicized titles for more levels. Please refer the **Appendix E**.

Example:

CHAPTER 2 - CHAPTER TITLE

2.1 Title of the section (second level)

2.1.1 Title of the subsection (third level)

Title of the sub-subsection (fourth level)

Title of the sub-sub-subsection (fifth level)

2.5. Font styles

The entire dissertation should be written in Times New Roman font style.

- Chapter Heading (first level):
 - Should be written in a single line.

- 14 Font size, Bold, 2.5 line space, 24 pt space below the line, Center aligned
- The chapter number - All Capital.
- The chapter title – Capitalized each word except prepositions (Title case).
- Section heading (second level):
 - Sentence case-12 Font size, Bold, 2.0 line space, Left aligned.
- Sub-section heading (fourth level):
 - Sentence case-12 Font size, Bold, 2.0 line space, Left aligned.
 - No chapter number
- Other sub-sub-section heading (fifth level):
 - Sentence case-12 Font size, Bold, 2.0 line space, Left aligned.
 - No chapter number
- Main body text:
 - Sentence case - 12 Font size, 1.5 line space, Justify.
 - There should be a 6 pts space after each paragraph.
- Tables and Illustrations :
 - Font size may be varied while maintaining legibility
 - Table and Figure captions should be 12 Font size, 1.5 line space, Center aligned

Please refer the **Appendix E**.

2.6. Tables, Figures and Illustrations

Tables are grids consisting of columns and rows that present numerical or verbal facts by categories. Figures include charts, graphs, diagrams, photographs, maps, musical examples, drawings and other images.

All tables and figures should be placed after (close to) their first reference in the text and center aligned.

Tables and figures should be numbered with the corresponding chapter number and the image/ figure number followed by a colon. An example is given bellow.

- the second figure of the chapter 3 should be named as “Figure 3.2:”
- the sixth table of the chapter 5 should be named as “Table 5.6:”

The table captions should be center aligned and placed above the table and the figure captions should be center aligned and placed below the figure. See the Table 1 and Figure 1 given bellow.

Captions of all tables and figures should be given indicating enough information so that they can be understood without referring to the text. Do not include table/ figures that are not referred in the text. The table captions should be written above the table and figure captions should be written below the figure.

Table 1.1: Sample table

Table Head	Column 1	Column 2	Column 3
Data	Data	Data	Data

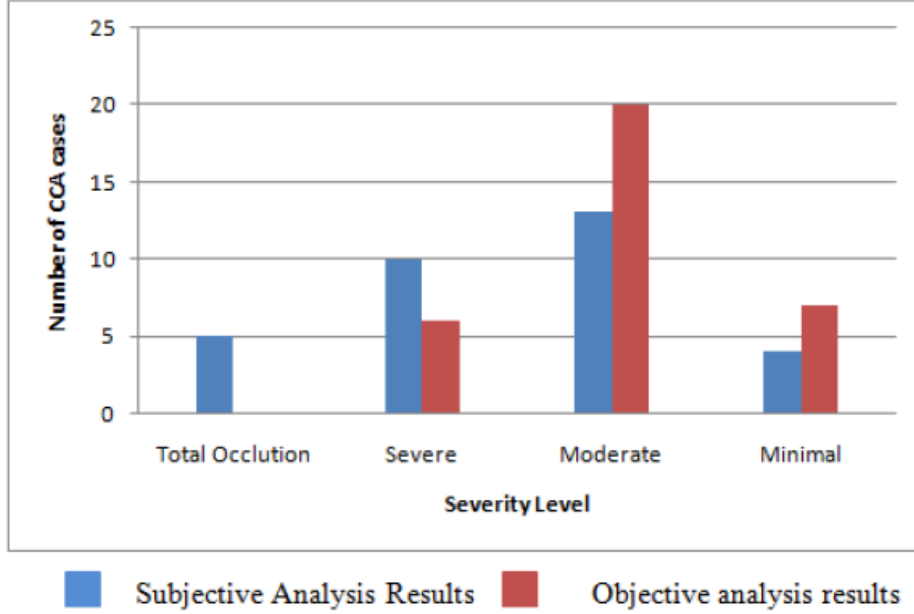


Figure 1.1: Sample figure.

2.7. Formulae

Formulae should be printed leaving ample space around the formulae. Subscripts and superscripts should be clear. Meanings of all symbols should be given immediately after the equation in which they are first used. Equations should be numbered serially at the right hand side within parentheses.

Use “Insert > Equation” or “Microsoft Equation Editor” to write formulae. An example is given below.

$$HD_{norm}(X, Y) = \frac{\sum_{i=1}^w \sum_{j=1}^l X_{i,j} \oplus Y_{i,j}}{w \times l} \quad (1)$$

Where;

- w - Height (number of rows) of the iris template
- l - Width (number of columns) of the iris template
- X, Y - Two iris templates to be compared
- $X_{i,j}, Y_{i,j}$ - bit value at i, j^{th} position

2.8. References

All references cited in the dissertation should appear in the reference list, and all references in the reference list should appear as citations. The reference list should be formatted to comply with **IEEE** referencing style.

2.9. Appendices

Detailed information or data which may increase the usefulness of the dissertation for examiners and subsequent readers, but which are too detailed for inclusion in the main body of the dissertation may be included as appendices. Appendices must meet standards with respect to margins and be formatted according to the remainder of the dissertation, though text may be single spaced.

2.10. Writing style

Simplicity and directness of writing style is recommended. The dissertation should be free of spelling, grammatical and punctuation errors.

3. Organization of the Dissertation

A dissertation should contain the following parts in the given order.

- Cover page
- Title page
- Declaration page of the candidate & supervisor
- Abstract
- Dedication (if available)
- Acknowledgements
- Table of contents
- List of figures (if available)
- List of tables (if available)
- List of abbreviations (if available)
- List of appendices (if available)
- The main body of the dissertation
- Reference list
- Appendices (if available)

3.1. Cover

The dissertation presented **for evaluation** should be **spiral/soft bound**.

The dissertations submitted **after the evaluation** (with the recommended changes suggested by the examination panel at the student's defense) should be **hard bound** with a **maroon color**.

The title should be placed 3cm from the top, in a font size equivalent to 22 of Times New Roman. The author's name/ names with initials and the year of submission should be placed 2cm from the bottom, in a font size of 20. All text should be centered. Gold colored lettering should be placed in the cover page of the hard copy (See **Appendix A**).

3.2. Title Page

A sample title page (only required in the final hard bound dissertation) is included in **Appendix C**.

3.3. Declaration

The declaration should be made by the candidate following the signature and the date. A candidate, after a discussion with the supervisor/s can request an embargo for a particular dissertation for a given work for a given time or indefinitely. Such an embargo may override the statement made in the dissertation itself. See **Appendix D** for statement of declaration.

3.4. Abstract

The abstract should be a concise description of the problem addressed in the project work, the method of solution, the results, evaluation and conclusions. The abstract **should not exceed 500 words** and written with single line spacing. It should conclude with a short entry

`Keywords' nominating several words or word phrases by which a computerized library search would find the project. The keywords are significant or memorable words or terms in an abstract that describe the contents of a document.

It is a mandatory requirement to include your abstract in the booklet of abstracts prepared by the department for the Annual Undergraduate Research Sessions. It must be submitted to the departmental coordinating editor, who prepares the booklet of abstracts. Specific guidelines for formatting the abstract are given in **Appendix F**.

3.5. Dedication

The student is free to include this section.

3.6. Acknowledgement

In the acknowledgement section, the student is required to declare the extent of assistance which has been given by his/her faculty/department staff, fellow students and external bodies or others in the collection of materials and data, the design and construction of apparatus, the analysis of data and preparation of the dissertation. If the research was sponsored, it is necessary to mention the name of the funding organization and other details (if any). In addition, it is appropriate to highlight the supervision and advice given by the dissertation supervisor.

3.7. Table of Contents

All the main chapters and subsections (up to level 3) of each chapter must be included in the table of contents with their page numbers. The page numbers of abstracts, acknowledgement and others which come first in the dissertation should also be included. Also, if there are any appendices and other supplements, they should be included in the table of contents.

3.8. List of Figures

If the dissertation contains any figures, then a separate list should be prepared including the name of the object and the page number. The chapter number should be included in defining the number of figures. Use a separate page to insert the list of figures.

3.9. List of Tables

If the dissertation contains any tables, then a separate list should be prepared including the name of the object and the page number. The chapter number should be included in defining the number of tables. Use a separate page to insert the list of tables.

3.10. List of abbreviations

Abbreviations must follow the international standards. When an abbreviation, which is not in common usage, is used for the first time, it must be explained in the text. A separate list should be prepared for all such abbreviations used in dissertation with their full meaning. The

abbreviations in the list should be arranged in alphabetical order. Use a separate page to insert the list of abbreviations.

3.11. List of Appendices

If the dissertation contains appendices, then a separate list should be prepared in the content page including the name of the Appendix and the page number. Use a separate page to insert the list of appendices.

3.12. The main body of the dissertation

The dissertation should be started from an introduction and the last part of the dissertation should include the conclusions, recommendations and future works. All the chapters of dissertation should have title and a chapter number. All new chapters should be started from a new page.

Candidates may have some flexibility in the structure of the body of the dissertation itself and should consult their supervisor(s). In general, a dissertation may consist of:

- An **introduction** to the dissertation, setting the work in the context of existing knowledge, the domain of application, establishing the need for the current study and its significance, and stating the aims and objectives and a brief overview of the contents of the rest of the dissertation
- A **literature review**, that arises out of the survey of already available literature that is relevant to the particular area of research
- A **methodology** section; all the materials as well as the procedures that were used in the study are described in detail.
- A **results and discussion** section; the major findings of the study in relevance to each specific objective of the study should be reported here. The findings should be discussed in reference to the current literature and the importance of the findings should be highlighted. This may also be presented as result section and a discussion section
- A **conclusion** providing a summary of the goals and the main findings of the study. Also, suggestions for future work might be included.

3.13. References

A reference list is the list of all books, articles, and other source of materials, which were referred and should be listed according to the international referencing method adopted. IEEE Style is recommended.

List and number all bibliographical references in 12-point Times New Roman, single-spaced, at the reference section of the dissertation. When referenced in the text, enclose the citation number in square brackets, for example [1]. Where appropriate, include the name(s) of editors of referenced books. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use “Ref. [3]” or “reference [3]” except at the beginning of a sentence: “Reference [3] was the first . . .”

The 'Reference list' does not contain a chapter number.

Example:

- [1] G. Eason, B. Noble, and I. N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," *Phil. Trans. Roy. Soc. London*, vol. A247, pp. 529–551, April 1955. (references)
- [2] J. Clerk Maxwell, *A Treatise on Electricity and Magnetism*, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.
- [3] S. Jacobs and C. P. Bean, "Fine particles, thin films and exchange anisotropy," in *Magnetism*, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271–350.

See the following links for details and examples for IEEE reference style:

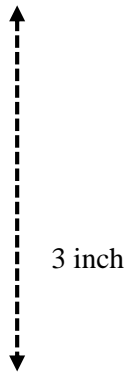
<https://www.ieee.org/documents/ieeecitationref.pdf>

All web references should give the complete URL and the date of access, in addition to the standard reference details.

3.14. Appendices

Supplementary material could be included as Appendices rather than in the main text. For example, Appendices may contain questionnaires, detailed descriptions on apparatus, extensive tables of raw data, computer algorithms, etc. If appendices contain photocopied material, the photocopies should be of letter quality.

Appendix A : Cover Page

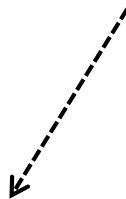


Smart Pattern Recognition Method for Human Facial Recognition



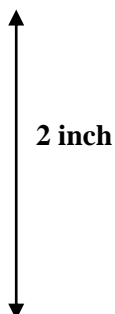
Letters : Title case, Bold
Font : Times New Roman, size 22
Font color : Black
Line spacing: 1.5 lines
Alignment : Center

Letters : Bold
Font : Times New Roman, size 20
Font color : Black
Line spacing: 1.5 lines
Alignment : Center

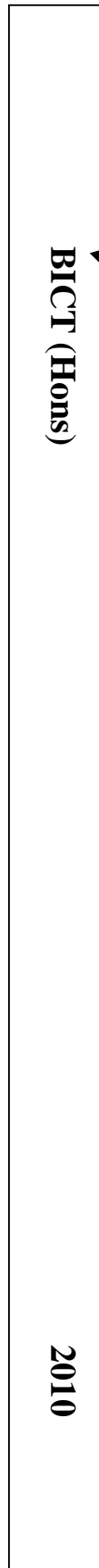


A.B. Perera

2010



Appendix B : Dissertation Spine



**Write the name of the degree;
Bachelor of Information Communication
Technology Honors**

Apendix C : Title Page

**SMART PATTERN RECOGNITION METHOD FOR HUMAN
FACIAL RECOGNITION**

A.B. Perera – Registration No

Letters : Bold
Font : Times New Roman, size 14
Font color : Black
Line spacing: 1.5 lines
Alignment : Center

Letters : All Capital, Bold
Font : Times New Roman, size 16
Font color : Black
Line spacing: 1.5 lines
Alignment : Center

Letters : Sentence Case
Font : Times New Roman, size 12
Font color : Black
Line spacing: 1.5 lines
Alignment : Center

Dissertation submitted in partial fulfillment of the requirements for the degree of Bachelor of Information Communication Technology Honors.

Department of Information and Communication Technology

Rajarata University of Sri Lanka.

Letters : Bold
Font : Times New Roman, size 116
Font color : Black
Line spacing: 1.5 lines
Alignment : Center

→ **2010**

Letters : Title Case
Font : Times New Roman, size 14
Font color : Black
Line spacing: 1.5 lines
Alignment : Center

Appendix D : Declaration

The following certification should be added ONLY in the hard bound dissertation that is submitted after the project defense.

Declaration

The dissertation is our original work and has not been submitted previously for a degree at this or any other university/institute. To the best of our knowledge it does not contain any material published or written by another person, except as acknowledged in the text.

Student's name Date
Signature

Student's name Date
Signature

Student's name Date
Signature

This is to certify that this dissertation titled <title>is based on the work of <name of the student/students>under my/our supervision. The dissertation has been prepared according to the format stipulated and is of acceptable standard.

Certified by

Supervisor 1 Name Date
Signature

Supervisor 2 Name Date
Signature

.....
Head/ Department of Information and Communication Technology
Faculty of Technology,
Rajarata University of Sri Lanka,
Mihintale.

Date

CHAPTER 4 – RESULTS AND DISCUSSION

4.1 Introduction

The iris recognition performance of the setup as a whole is examined and discussed in this chapter. Main experiments were carried out to find the best separation of intra-class and inter-class variations, also to ensure the accuracy of the recognition setup. So that False Accept Rate and False Reject Rate are minimized. Apart from them, some other experiments were carried out to ensure the uniqueness of iris template and to find the best number block size and word size of an iris template.

4.2 Uniqueness of final bit vector patterns

One of the major characteristics of a template which is to be used as biometric authentication template is the uniqueness. The patterns of each biometric template of different users should be distinguishable. Before to use any biometric trait (or type) in an authentication system, it is essential to confirm the templates of the desired biometric trait are unique (or divergent) from each other. Hamming Distance (HD) and Degrees-of-Freedom (DoF) are two measures that could be used to measure such characteristics.

4.2.1. Use of hamming distance and degrees-of-freedom

The enrolled templates of different individuals were compared to each other in order to determine the uniqueness. Such a comparison could be categorized into inter-class comparison.

Inter-class comparison

From every single comparison, a value for hamming distance was obtained. Since the proposed approach could be executed for a different possible number of repetitions of XOR function and word sizes, this experiment was executed for a selected possible number of repetitions of XOR function while keeping word size as 20.

Appendix F : Abstract Template

Authors: Times NR, 12pt, centered, 10pt space after names
* for corresponding author,

EFFECTIVE PRIVACY-PRESERVING IRIS RECOGNITION

Title: Upper Case, Times NR, 12pt, Bold, Centered, 10pt space after title

J. Udara Wickramaarachchi^{1*}, Xiang Jianwen² and Al-haj M. Yousif²
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Rajarata University of Sri Lanka, Mihintale, Sri Lanka*

²*School of Computer Science and Technology, Wuhan University of Technology, Wuhan
Hubei, China*

Affiliation: Times NR, 12pt, Italic, Centered, single line space, 10pt space after last affiliation

Iris recognition plays a vital role in modern identity management and access control. The patterns of the structure of the irises are differed and unique to every single person. It keeps a stable structure through the whole life of an adult. These properties make good interest towards using iris as a biometric trait for authentication or identification of individuals. There are numerous research works have been done on developing novel approaches to authenticate legitimate users while keeping their privacy based on two main technical streams; Feature Transformation Techniques and Biometric Cryptosystems. Though these techniques are theoretically sound, they rarely guarantee the required non-invertibility and non-linkability properties, whereas revocability is realized quickly.

Body Text: Times NR, 12pt, justified, 1.5 line space, 10pt space after each paragraph, max 250 words

As feature transformation techniques, we propose an effective biometric recognition templates based on XOR function, while protecting the privacy of these iris templates. As a new method to transform extracted features, we use XOR function to encode the features into another representation. An application specific key is XORed with each column of input iris vector; then each column is XORed with its adjacent columns up to the desired number of rounds.

Compared to the recognition performances of the other existing works, we have succeeded to come to closer recognition performances of existing works. The morsel value of probability to rebuild the original iris template of a single subject from enrolled iris bit vector templates in either single application or different applications, ensures the irreversibility and renewability. The use of application specific keys for each application, ensures the unlinkability. The final results of the research are favorable. This work opens for future enhancements.

Keywords: maximum five keywords

Keywords: Biometric Recognition, Privacy Protection, Feature Transformation Technique, XOR