To the Graduate Council:

I am submitting herewith a thesis written by Isaac Sherman entitled "On the Role of Genetic Algorithms in the Pattern Recognition Task of Classification." I have examined the final paper copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Computer Science.

_____

Bruce MacLennan, Major Professor

We have read this thesis
and recommend its acceptance:

_____

Dr. Bruce MacLennan

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Dr. Hairong Qi

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Dr. Catherine Schuman

Accepted for the Council:

_____

Someone Important

Vice Provost and Dean of the Graduate School

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(Original signatures are on file with official student records.)

On the Role of Genetic Algorithms in the Pattern Recognition Task of Classification

A Thesis Presented for

The Master of Science

Degree

The University of Tennessee, Knoxville

Isaac Sherman

May 2017

dedication...

Acknowledgements

I would like to thank...

Some quotation...

Abstract

Abstract text goes here...

Contents

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Chapter 1

Introduction

This is a very short guide to an unofficial thesis/dissertation template for the University of Tennessee. It is based on the 2010 thesis specifications but can be easily altered as the guidelines are changed. This template requires a basic knowledge of LaTeX and should cover the basic requirements in terms of required packages and functionality.

## 1.1 Disclaimer

This template is distributed with **ABSOLUTELY NO WARRANTY**. It serves as a guideline and constitutes a basic structure for a thesis/dissertation. The user assumes full responsibility for formatting and typesetting their document and for verifying that all the thesis requirements set by the University of Tennessee are met. Please refer to the most recent UT thesis guide http://web.utk.edu/ thesis/thesisresources.shtml or contact the thesis consultant (http://web.utk.edu/ thesis/). Please report any bugs to the thesis consultant.

1.2   Getting started

The general structure of this template is based on the tree shown in Figure 1.1. The titles of the folders are self descriptive and should guide you to proper file placement. Note that this is only a suggested model that could be modified to fit your own organizational structure.

There are two important files in this template: "ut-thesis-template.tex" and "utthesis.cls". The "utthesis.cls" is the class file that contains the settings, definitions, packages, and macros for this template to work properly and is located in the root directory. This file constitutes the document class for the template. It is based on the report class and provides some customized functionality. For example, it can automatically generate the signature pages for committees of up to five members. It will also generate a title page for you. In certain cases, one of the packages included in this template may conflict with a package that you are adding. You will have to resolve this conflict by either removing the package that is not being used or by modifying some settings with either packages. The packages that are preloaded in
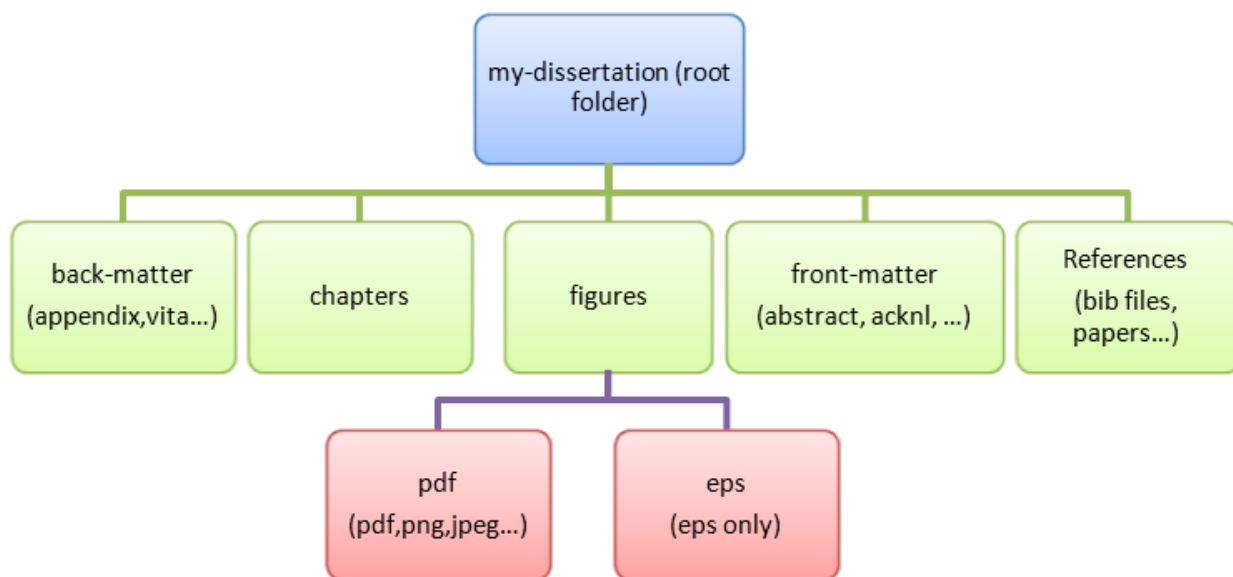
Figure 1.1: UT thesis template folder structure.

this class file are: amsmath, amsthm, amssymb, setspace, geometry, hyperref, and color.

The "my-dissertation.tex" file is the main file for your thesis/dissertation. This is where you should start editing and planning for your thesis/dissertation. You may want to change the name of the file to something like "my-name-dissertation.tex". Next, invoke the proper options for the "utthesis" document class. This class will take all the options for the report class in addition to two options: thesis/dissertation and monochrome. If you are writing a thesis, you must use "thesis" otherwise, use "dissertation" or omit that option because dissertation is the default setting. The monochrome option converts all your document to monochrome - except figures. This is very useful when printing your document. Because this dissertation has colored hyperlinks, these will look washed out when printed on a monochrome printer. Therefore, it is handy to have a monochrome copy of you3r thesis for print. Below are some examples of typical settings.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Thesis, color, one side
\documentclass[thesis,monochrome,letterpaper,12pt]{utthesis}
Thesis, monochrome, one side
\documentclass[thesis,monochrome,letterpaper,12pt]{utthesis}
Thesis, color, twoside side (good for binding)
\documentclass[thesis,twoside,letterpaper,12pt]{utthesis}
Thesis, monochrome, twoside side (good for binding)
\documentclass[thesis,monochrome,twoside,letterpaper,12pt]{utthesis}
Dissertation, color, one side
\documentclass[dissertation,letterpaper,12pt]{utthesis}
Dissertation, monochrome, two side
\documentclass[dissertation,twoside,letterpaper,12pt]{utthesis} . . .
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

Now you are ready to fill in the proper values corresponding to your name, degree, advisor etc... This can be done in the following section:

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% TO DO: FILL IN YOUR INFORMATION BELOW - READ THIS SECTION CAREFULLY
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\title{My Thesis or Dissertation Title}
\author{My Name}
\copyrightYear{2012}
\graduationMonth{May}
\majorProfessor{My Advisor}
\keywords{List, Of, Keywords}
\viceProvost{Carolyn R. Hodges}
\major{Mechanical Engineering}
\degree{Master of Science}
\college{Engineering}
\dept{Mechanical, Aerospace and Biomedical Engineering}
\university{The University  of Tennessee, Knoxville}
\numberOfCommitteeMembers{2}
\committeeMemberA {Committee Member 1}
\committeeMemberB {Committee Member 2}
\committeeMemberC {Committee Member 3}
\committeeMemberD {Committee Member 4}
\committeeMemberE {Committee Member 5}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

Note, that if you have less than five committee members, you will only need to fill in the names of your committee. The template will take care of the rest given that you provide the correct number of committee members. For example, if you have three members on your committee, you only need to fill in

```
\numberOfCommitteeMembers{3}

\committeeMemberA {Committee Member 1}

\committeeMemberB {Committee Member 2}

\committeeMemberC {Committee Member 3}
```

1.3 References

The bibliography style used in this template is "apalike". It is an author-year style based on the APA specification. Here are a few examples. Fermi (1956) wrote a book on thermodynamics. The book by Liepmann and Roshko (2001) on gas dynamics is a classic textbook used in most courses on compressible flows. You can also use the citations at the end of a line (Saad and Majdalani, 2010; Lamb, 1895). For more information, visit http://merkel.zoneo.net/Latex/natbib.php.

1.4 Theorem environments

This template contains predefined theorem, lemma, and corollary environments. For example

Theorem 1.1 (First theorem)**.** *This is an example theorem.*

Proof for theorem. 1.1 This is the proof for this theorem.   □

**Lemma 1.1.1** (First lemma)**.** *This is the first lemma.*

Corollary 1.1.1. *This is the first corollary.*

1.5   Figures

1.5.1   Single figures

For more information, check: http://en.wikibooks.org/wiki/LaTeX/Floats,_Figures_and_Captions

```
\begin{figure}[t for top, b for bottom, h for here, ! to force placement]
    % Requires \usepackage{graphicx}
    \centering % center the figure
    \includegraphics[width=5in or 127mm etc...]{figure-name}\\
    \caption{figure caption}\label{figure label}
\end{figure}
```
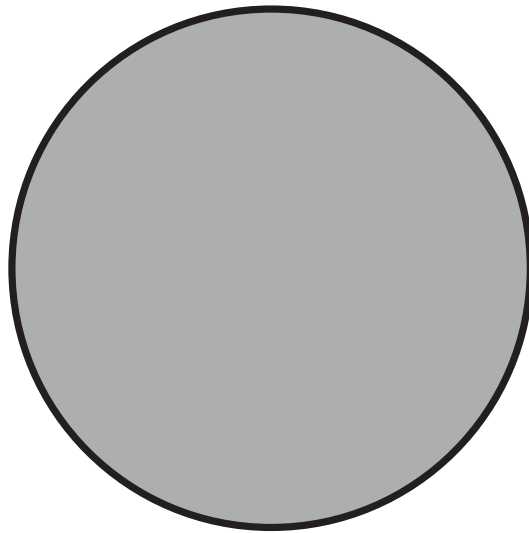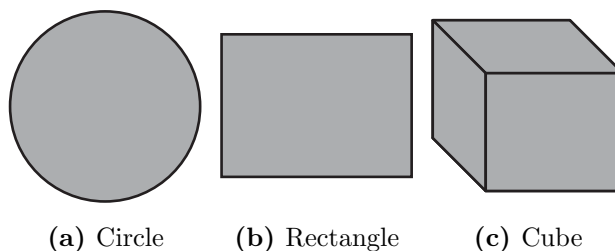

Figure 1.2: Sample caption.

1.5.2   Multipart figures

For multipart figures, you need to use the package "subfig". here's an example

```
\begin{figure}
    \centering
    \subfloat[figure a]{\label{fig:figure-a} \includegraphics[width=w]{fig02a}}
    \subfloat[figure b]{\label{fig:figure-b} \includegraphics[width=w]{fig02b}}
    \subfloat[figure c]{\label{fig:figure-c} \includegraphics[width=w]{fig02c}}
    \caption{Sample of a multipart figure} \label{fig:multipart-figure}
\end{figure}
```


(a) Circle   (b) Rectangle   (c) Cube

Figure 1.3: Geometric shapes.

To add some space between the figures above, one can use the usual spacing commands such as "qquad"

(a) Circle   (b) Rectangle   (c) Cube
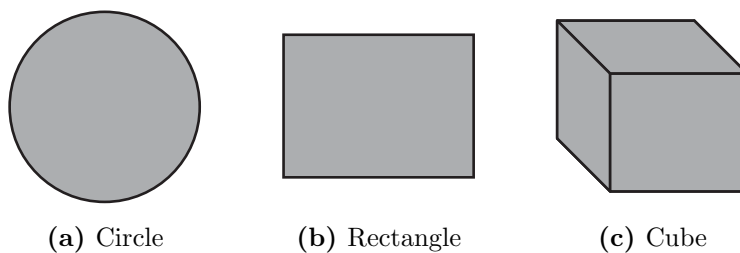
Figure 1.4: Geometric shapes.

Chapter 2

Derivation of the Navier-Stokes Equations

Chapter 3

Computational Fluid Dynamics

Chapter 4

Conclusions

Bibliography

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Saad, T. and Majdalani, J. (2010). On the Lagrangian optimization of wall-injected flows: from the Hart-McClure potential to the Taylor-Culick rotational motion. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Science*, 466(2114):331–362. 5

Appendix

Appendix A

Summary of Equations

A.1   Cartesian

some equations here

A.2   Cylindrical

some equations also here

Vita

Vita goes here...