A Thesis Template for Huazhong University of Science and Technology: the hustthesis class *

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November 17, 2016

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^{*}This document corresponds to hustthesis.cls v1.4, dated 2016/11/17.

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I Introduction

This is a thesis template for Huazhong University of Science & Technology. This template is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

The whole project is published under LPPL v1.3 License at GitHub. 中文使用说明见 Part II。

English version instruction is in Part III.

II 中文使用说明

1 使用必要条件

- 1. 安装最新版本的 TeXLive (推荐) 或 MiKTeX。因为未及时更新的宏包可能存在未修复的 bug,请确保所有宏包都更新至最新。
- 2. 安装如下中文字体1:
 - a) AdobeSongStd-Light
 - b) AdobeKaitiStd-Regular
 - c) AdobeHeitiStd-Regular
 - d) AdobeFangsongStd-Regular



如果使用LuaTEX,安装字体之后需运行命令mkluatexfontdb 生成字体索引。

2 安装

2.1 安装到本地

使用如下命令即可安装本模板到本地:

make install

如需卸载,则使用如下命令:

make uninstall

对于没有安装 Make 的 Windows 系统用户,可以使用如下命令安装:

makewin32.bat install

如需卸载,则使用如下命令:

makewin32.bat uninstall

虽然 makewin32.bat 表现与 Makefile 极其相似,但是还是强烈建议你安装 Make,对于 Windows 用户可以在这里下载。

 $^{^1}$ 本模板所用到的英文字体 Tex Gyre Termes,Droid Sans 和 CMU Typewriter Text 均默 认安装于 TeXLive 和 MiKTeX 中。

2.2 免安装使用

如果你希望临时使用本模板,而非安装到本地供长期使用。使用如下命令 解压模板文件:

make unpack

对于没有安装 Make 的 Windows 系统用户,则使用如下命令解压:

makewin32.bat unpack

再将 hustthesis 目录下的如下文件拷贝到你 TeX 工程根目录下即可:

- hustthesis.bst
- hustthesis.cls
- hust-title.eps
- hust-title.pdf

3 基本用法



本文档只能使用 XTIATEX 或 LualATEX (推荐) 编译。

在源文件开头处选择加载本文档类型,即可使用本模板,如下所示:

\documentclass{hustthesis}

3.1 文档类型选项

加载本文档类型时,有如下三个选项提供选择。

format format = $\langle draft | final \rangle$

提交草稿选择 draft 选项,提交最终版选 final 选项。其中草稿正文页包括页眉("华中科技大学 xx 学位论文")、页眉修饰线(双线)、页脚(页码)和页脚修饰线(单线)。而最终版正文页不包括页眉、页眉修饰线和页脚修饰线,仅包含页脚(页码)。如果不指定,默认设置为 final。

degree degree = $\langle none | fyp | bachelor | master | phd \rangle$

指定论文种类,它将通过设置字段\HUST@zhapplyname和\HUST@enapplyname来影响中英文封面处的标题和正文处的页眉(如果 format 设为 draft)。各个不同的选项产生的效果见表 1。如果不指定,默认设置为 none。如有需要,这两个字段可以通过\zhapplyname,\enapplyname,\applyname 命令进一步修改。

language

language = \language | english | english-draft\rangla

Updated: 2013-07-01

指定论文语言。特别的,如果设定为 english-draft,将会剔除论文中的所有中文内容,这有利于在未安装中文字体的环境中使用。如果不指定,默认设置为 chinese。

Table 1: degree 选项的作用

选项	中文标题	英文标题
起坝	(字段\HUST@zhapplyname)	(字段\HUST@enapplyname)
none	学位论文	A Thesis Submitted in Par-
		tial Fulfillment of the Re-
		quirements for the Degree
fyp	毕业论文	A Thesis Submitted in Par-
		tial Fulfillment of the Re-
		quirements for Final Year
		Project
bachelor	学士学位论文	A Thesis Submitted in Par-
		tial Fulfillment of the Re-
		quirements for the Degree of
		Bachelor
master	硕士学位论文	A Thesis Submitted in Par-
		tial Fulfillment of the Re-
		quirements for the Degree of
		Master
phd	博士学位论文	A Thesis Submitted in Par-
		tial Fulfillment of the Re-
		quirements for the Degree of
		Philosophy

3.2 基本字段设置

模板中定义一些命令用于设置文档中的字段。其中一部分命令是以\zhX{<Chinese var>},\enX{<English var>}和\X{<Chinese var>}{<English var>}的形式出现,他们分别意味着设置字段 X 的中文部分,英文部分及一同设定。

 $\mathsf{Zhtitle} \ \mathsf{Zhtitle}(\mathsf{Chinese} \ \mathsf{title})$

\entitle \entitle ${\langle English \ title \rangle}$

这一组命令用于设定论文的中英文标题。

\enauthor \enauthor $\{\langle English\ author\rangle\}$ \author $\operatorname{Author}(Chinese author) \{ \langle English author \rangle \}$ 这一组命令用于设定论文的中英文作者名。 \date $\displaystyle \det \{\langle Year \rangle\} \{\langle Month \rangle\} \{\langle Day \rangle\}$ 该命令用于设定论文的答辩日期。如果不设定,则会选择当前编译日期作为答 辩日期。 \zhschoolname \enschoolname $\enskip {English school name}$ \schoolname 这一组命令用于设定论文的中英文学校名。该字段在模板中已默认设置为 \schoolname{华中科技大学}{Huazhong University of Science \& Technology}。所以除非需更改学校名,无需使用该命令。 \zhaddress \enaddress $\ensuremath{\mbox{\mbox{enaddress}}}\$ \address $\address{\langle Chinese \ address \rangle} {\langle English \ address \rangle}$ 这一组命令用于设定论文的中英文学校地址。该字段在模板中已默认设置为 \address{中国, 武汉, 430074}{Wuhan~430074, P.~R.~China}。所以除非 需更改学校地址, 无需使用该命令。 \zhapplyname \enapplyname{\langlish apply name\rangle} \enapplyname $\alpha = {Chinese apply name} {(English apply name)}$ \applyname 这一组命令用于自定义中英文封面处的标题和正文处的页眉。详情见 degree Updated: 2016-11-17 文档类型选项。 $\operatorname{nmajor}(\langle English \ major \rangle)$ \enmajor $\mbox{\mbox{\mbox{$major$}}} {\mbox{\mbox{$major$}}} {\mbox{\mbox{$chinese major$}}} {\mbox{\mbox{$major$}}} {\mbox{\mbox{\mbox{$major$}}}} {\mbox{\mbox{$major$}}} {\mbox{\mbox{\mbox{$major$}}}} {\mbox{\mbox{$major$}}} {$ \major 这一组命令用于设定论文的中英文专业名。 \zhsupervisor \zhsupervisor{\langle Chinese supervisor\rangle} \ensupervisor{\langlish supervisor\} \ensupervisor $\supervisor{\langle Chinese supervisor \rangle}{\langle English supervisor \rangle}$ \supervisor 这一组命令用于设定论文的中英文指导老师名(含职称)。

\zhasssupervisor \enasssupervisor{\langlish asssupervisor\} \enasssupervisor \asssupervisor $\asssupervisor{\langle Chinese\ asssupervisor \rangle}{\langle English\ asssupervisor \rangle}$ 这一组命令用于设定论文的中英文副指导老师名(含职称)。该命令是可选的, 如果不加以设定, 封面处不会显示相应项。 \schoolcode $\schoolcode{\langle school \ code \rangle}$ 用于设置学校代码。 \stuno{\student number\} \stuno 用于设置学号。 $\classno{\langle classify number \rangle}$ \classno 用于设置分类号。 $\scretlevel{secret level}$ \secretlevel 用于设置密级。 $\verb|\enabstract| \langle \textit{English abstract} \rangle|$ $\abstract{\langle Chinese\ abstract\rangle}{\langle English\ abstract\rangle}$ \abstract 这一组命令用于设定论文的中英文摘要。 \zhkeywords \zhkeywords{\langle Chinese keywords\rangle} \enkeywords $\ensuremath{\mbox{enkeywords}} \ensuremath{\mbox{(English keywords)}}$ $\ensuremath{\mbox{keywords}} {\columnwidth} {\col$ \keywords 这一组命令用于设定论文的中英文关键字。

3.3 其它基本命令

下面来介绍其它基本命令。

\frontmatter 这一组命令用于设定论文的状态、改变样式,其具体使用见<mark>简单示例。\front-mainmatter matter</mark> 用在文档最开始,表明文档的前言部分(如封面,摘要,目录等)的开始。\backmatter 表示论文正文的结束。
\maketitle \maketitle 和\makecover作用相同,用于生成封面和版权页面。
\makecover 用于生成中英文摘要页面。

\tableofcontents 用于生成目录。

\zhdateformat 用于打印中英文日期。

\endateformat

ack

ack 环境用于致谢页面。使用方法如下:

\begin{ack}

<content>

 \end{ack}

\bibliography

用于生成参考文献。

appendix

appendix 环境用于附录环境。你可以将附录置于 appendix 环境中, 如:

\begin{appendix}

<content>

\end{appendix}

\appendix

或者使用\appendix代表后文均为附录,如:

\appendix

<content>

\listoftables

\listoffigures 这两个命令分别用于生成图片和表格索引,可以根据要求在论文前言中使用或 附录中使用。

publications

publications 环境用于已发表论文页面。一般用于附录中。使用上同 enumerate 环境。如下:

\begin{publications}

\item <thesis>

<...>

\end{publications}

\TurnOffTabFontSetting \TurnOnTabFontSetting

因为模板中设定了表格的行距和字号,使得使用中无法临时自定义表格的行距和字号。故提供两个命令用于关闭和开启默认表格的行距和字号设置。比如你如果需要输出一个自己定义字号的表格,可以使用如下示例:

 $\verb|\email| $$ \operatorname{Email} Address|$

用于生成邮箱地址。如\email{name@example.com}会生成如下效果的地址: name@example.com。

4 简单示例

如下为一个使用本模板的简单示例。更完整的例子请见hustthesis-zh-example.tex 文件,其效果见hustthesis-zh-example.pdf。

```
\documentclass[degree=phd,language=chinese]{hustthesis}

\stuno{你的学号}
\schoolcode{10487}
\title{中文标题}{英文标题}
\author{作者名}{作者名拼音}
\major{专业中文}{专业英文}
\supervisor{指导老师中文}{指导老师英文}
\date{2013}{7}{1} %答辨日期

\zhabstract{中文摘要}
\zhabstract{英文摘要}
\enkeywords{英文关键字}
\henkeywords{英文关键字}

\begin{document}

\frontmatter
\maketitle
```

```
20 \makeabstract
21 \tableofcontents
22 \listoffigures
23 \listoftables
24 \mainmatter
26 %% 正文
28 \backmatter
30 \begin{ack}
31 %% 致谢
\sqrt{\text{end}}\{ack\}
33 \bibliography{参考文献.bib文件}
  \appendix
37 \begin{publications}
38 %% 发表过的论文列表
39 \end{publications}
41 %% 附录剩余部分
  \end{document}
```

5 预设宏包介绍

本模板中预设了一些宏包,下面对其进行简单介绍。

- algorithm2e 算法环境。
- enumitem 自定义列表环境的式样。
- fancynum 用于将大数每三位断开。
- listings 代码环境。如需更好的代码高亮可以使用 minted 宏包。
- longtable 跨页的超长表格环境。
- Itxtable longtable 环境和 tabularx 环境的合并。
- multirow 用于表格中合并行。
- overpic 用于在图片上层叠其他内容。
- tabularx 扩展到表格环境。
- zhnumber 用于生成中文数字。

6 高级设置

6.1 切换字体

模板正文字体为宋体 (AdobeSongStd-Light),同时我们提供如下命令切换中文字体:

\HEI ${\text{Content}}$

 $\verb|\hei| {\it content|}|$

切换字体为黑体(AdobeHeitiStd-Regular)。

\KAI $\{\KAI \ (content)\}$

 $\hat{\langle content \rangle}$

切换字体为楷体(AdobeKaitiStd-Regular)。

 $\verb|\FANGSONG| {\Content|}|$

 $\verb| \fangsong \fangsong{| \langle content \rangle|}$

切换字体为仿宋 (AdobeFangsongStd-Regular)。

如果需要加载其他字体,请参阅宏包 fontspec,宏包 xeCJK (对于 X<u>H</u>ET<u>E</u>X)和宏包 luatex-ja (对于 LualET<u>E</u>X)的文档。

6.2 内部字段设置

本模板定义了很多内部字段,其具体内容见 section 7。通过更改这些字段,可以对论文格式进行自定义。

III English Version Instruction

1 Requirement

Install the latest version of TeXLive(Recommend) or MiKTeX. Please ensure that all the packages are up-to-date.

If you need to produce the final format of thesis (see subsection 3.1 for more details), you should also need to install following Chinese fonts:

- AdobeSongStd-Light
- AdobeKaitiStd-Regular
- AdobeHeitiStd-Regular
- AdobeFangsongStd-Regular



If you use LuaTEX, you need to run the command mkluatexfontdb to refresh font database index after installing the fonts.

2 Installation

2.1 Install into local

Use the command below to install this template into local.

```
make install
```

If you need uninstall it, use the command below.

```
make uninstall
```

For Windows User who don't install Make, use the command below to install.

```
makewin32.bat install
```

If you need uninstall it, use the command below.

```
makewin32.bat uninstall
```

Although makewin32.bat behaves much like Makefile, I still recommend you install Make into your Windows. You can download it from here.

2.2 Use without installation

If you want to use this template temporary rather than installing it into local for long term use. Run below command to unpack the package.

```
make unpack
```

For Windows User who don't install Make, use the command below to unpack the package.

```
makewin32.bat unpack
```

Then copy the following files from directory hustthesis into your TEX project root directory.

- hustthesis.bst
- hustthesis.cls
- hust-title.eps
- hust-title.pdf

3 Usage



This template can only be compiled by XHIEX orLualIEX(Recommend).

Insert below code in the top of source code to use this template:

\documentclass[language=english]{hustthesis}

3.1 Option

There're three options available when use this template.

```
format format = \langle draft | final \rangle
```

If format is set to final, the header will be removed. This option is only valid if language is not set to english-draft. The default value is final.

language lang

language = $\langle chinese | english | english-draft \rangle$

Set what language is used in the document. Specially, if it's set to english-draft, all the Chinese characters will be removed in the document. This is extremely helpful when you don't install Chinese fonts. The default value is chinese.

degree degree = \langle none | fyp | bachelor | master | phd \rangle

Set the category of thesis. It will influence the title of document, see Table 2. The default value is none. Noted that the apply name field in the title page can be further customized through \applyname command.

Table 2: Title under different degree

Option	Title
none	A Thesis Submitted in Partial Fulfillment of the Require-
	ments for the Degree
fyp	A Thesis Submitted in Partial Fulfillment of the Require-
	ments for Final Year Project
bachelor	A Thesis Submitted in Partial Fulfillment of the Require-
	ments for the Degree of Bachelor
master	A Thesis Submitted in Partial Fulfillment of the Require-
	ments for the Degree of Master
phd	A Thesis Submitted in Partial Fulfillment of the Require-
	ments for the Degree of Philosophy

Variables setting 3.2

There're some commands which are used to set the variables for the thesis.

\title \title ${\langle title \rangle}$

Set title.

\author \author $\{\langle author \rangle\}$

Set author.

 $\label{eq:date} $$ \date{\langle Year \rangle}_{\langle Month \rangle}_{\langle Day \rangle}$$$

Set date. If you don't set it, template will use current date.

\schoolname

 $\schoolname{\langle school name \rangle}$

Set the name of school which has been set as

\schoolname{Huazhong University of Science \& Technology} by default. So unless you want to change the name, you don't need to use this command.

 $\address{\langle address \rangle}$ \address

Set the address of school which has been set as

\address{Wuhan~430074, P.~R.~China} by default. So unless you want to change the address, you don't need to use this command.

 $\alpha \{\langle apply name \rangle\}$ \applyname

Custom the apply name which affects English title page. See more detail Updated: 2016-11-17

at degree option.

 $\mbox{major}(\mbox{major})$ \major

Set your major.

 $\space{supervisor}{supervisor}$ \supervisor

Set your supervisor.

 $\assupervisor{\langle ass-supervisor \rangle}$ \asssupervisor

Set your ass-supervisor if you have.

 $\abstract{\langle abstract \rangle}$ \abstract

Put your abstract.

 $\keywords{\langle keywords \rangle}$ \keywords

Put your keywords.

3.3 Other commands

\frontmatter Used to determine the different part of document. You can see the example

at section 4. \mainmatter

\maketitle and \makecover are the same. Used to create the title page. \maketitle

\makecover

\backmatter

\makeabstract Used to create abstract page.

Used to create table of contents. \tableofcontents

\endateformat Used to print the date.

The ack environment is used to create acknowledge page. ack

\bibliography

 $\verb|\bibliography{|\langle .bib \ file \rangle|}|$

Used to create bibliography page.

appendix

The appendix environment is for appendix of course. Used like this:

\appendix

Or simple use \appendix to indicate that the rest of document are all in appendix, like this:

```
\appendix
<content>
```

\listoffigures \listoftables Create the index for all the figures and tables separately.

publications

The publications environment is where you list all of your published thesises. It's usually putted in appendix.

```
\TurnOffTabFontSetting
\TurnOnTabFontSetting
```

This template has set the font size and line spread for all the tables which makes it's impossible to change font format temporary in one table. So it provides these to command to temporary disable or enable default font setting in table. For example, if you want to change table font size, you can use the code like this:

 $\verb|\email| \email{|Email| Address|}|$

A command to display email address. For example, \email{name@example.com} would look like this: name@example.com.

4 Simple example

Below is a simple example of using this template. For a complete example see hustthesis-en-example.tex which will generate hustthesis-en-example.pdf.

```
1 \documentclass[degree=phd,language=english]{hustthesis}
2
3 \title{your title}
4 \author{your name}
5 \major{your major}
6 \supervisor{your supervisor}
7 \date{2013}{7}{1}
8
9 \abstract{the abstract}
10 \keywords{the keywords}
11
12 \begin{document}
13
14 \frontmatter
15 \maketitle
16 \makeabstract
```

```
17 \tableofcontents
18 \listoffigures
19 \listoftables
20 \mainmatter
22 %% main body
24 \backmatter
26 \begin{ack}
27 %% acknowledge
29 \bibliography{.bib file}
  \appendix
33 \begin{publications}
34 %% your publications
35 \end{publications}
37 %% rest of appendix
39 \end{document}
```

5 Introduction to some packages used in the template

Here's a list of some packages used in the template.

- algorithm2e For display algorithm.
- enumitem For set the style of enumerate, itemize and description environment.
- fancynum Display the really big number.
- listings For display the highlighted code. If you need better quality, use the package minted.
- longtable Create a very long table.
- Itxtable Combine the features of longtable and tabularx.
- multirow Combine multi-rows in table.
- overpic Put something over a picture,
- tabularx A better table environment.

IV Implementation

```
1 %<*class>
2 \RequirePackage{ifthen}
```

1 Process Options

Use xkeyval to process options.

```
3 \RequirePackage{xkeyval}
    Option format.
4 \newif\ifHUST@finalformat
5 \HUST@finalformattrue
 \DeclareOptionX{format}[final]{
    \ifthenelse{\equal{#1}{final}}{
     \HUST@finalformattrue
   }{
     \ifthenelse{\equal{#1}{draft}}{
10
       \HUST@finalformatfalse
     }{
12
       \ClassError{hustthesis}
       {Option format can only be 'final' or 'draft'}
14
       {Try to remove option format^^J}
     }
    }
17
18 }
    Option language.
19 \gdef\HUST@language{chinese}
 \DeclareOptionX{language}[chinese]{
    glish-draft}}{
     \gdef\HUST@language{#1}
   }{
23
     \ClassError{hustthesis}
24
     {Option language can only be 'chinese', 'english' or 'english-draft'}
     {Try to remove option language^^J}
   }
28 }
```

```
Option degree.
```

```
29 \gdef\HUST@degree{none}
 \DeclareOptionX{degree}[none]{
   elor} \OR \equal{#1}{master} \OR \equal{#1}{phd}}{
     \gdef\HUST@degree{#1}
32
   }{
33
      \ClassError{hustthesis}
       {Option degree can only be 'none', 'fyp', 'bachelor', 'master' or 'phd'}
35
       {Try to remove option degree^^J}
   }
38 }
    Process options and load class book.
39 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{book}}
40 \ProcessOptionsX
41 \LoadClass[12pt, a4paper, openany]{book}
```

2 Check Engine

Check engine, only X¬IBTEX and LuaIBTEX are supported.

```
42 \RequirePackage{iftex}
 \ifXeTeX\else
   \ifLuaTeX\else
    \begingroup
45
     \errorcontextlines=-1\relax
46
     \newlinechar=10\relax
47
     \errmessage{^^J
48
     * XeTeX or LuaTeX is required to compile this document.^^J
50
     * Sorry!^^J
51
     \endgroup
   \fi
56 \fi
```

3 Font Setting

Set font used in document. Firstly, it's font setting for English font under english-draft mode. We use fontspec package to handle font. We

choose Tex Gyre Termes, Droid Sans and CMU Typewriter Text as document main font, sans font and mono font.

Now let's set the Chinese font commands into empty, when document is under english-draft mode.

```
69  \let\HEI\relax
70  \let\KAI\relax
71  \let\FANGSONG\relax
72  \newcommand{\hei}[1]{#1}
73  \newcommand{\kai}[1]{#1}
74  \newcommand{\fangsong}[1]{#1}
75 }{}
```

Below is the font setting under chinese or english mode. We chooses the same English font as under english-draft mode. We use <code>xecjk</code> package (for Xalatex-ja package (for Lualatex, recommend) to handle Chinese font. We will use font: AdobeSongStd-Light, AdobeKaitiStd-Regular, AdobeHeitiStd-Regular and AdobeFangsongStd-Regular.

```
76 \ifthenelse{\equal{\HUST@language}{english-draft}}{}{
77  \ifXeTeX % XeTeX下使用 fontspec + xeCJK处理字体
78  % 英文字体
79  \RequirePackage{fontspec}
80  \RequirePackage{xunicode}
81  \setmainfont[
82  Ligatures={Common,TeX},
83  Extension=.otf,
84  UprightFont=*-regular,
85  BoldFont=*-bold,
86  ItalicFont=*-italic,
87  BoldItalicFont=*-bolditalic]{texgyretermes}
```

```
\setmonofont{CMU Typewriter Text}
                    \defaultfontfeatures{Mapping=tex-text}
          90
                    % 中文字体
                    \RequirePackage[CJKmath]{xeCJK}
          92
                    \setCJKmainfont[
          93
                     BoldFont={Adobe Heiti Std},
                     ItalicFont={Adobe Kaiti Std}]{Adobe Song Std}
          95
                    \setCJKsansfont{Adobe Kaiti Std}
          96
                    \setCJKmonofont{Adobe Fangsong Std}
          97
                    \xeCJKsetup{PunctStyle=kaiming}
                    \newcommand\ziju[2]{{\renewcommand{\CJKglue}{\hskip #1} #2}}
          100
     \HEI
                    \newCJKfontfamily\HEI{Adobe Heiti Std}
          101
            (End definition for \HEI. This function is documented on page 13.)
     \KAI
                    \newCJKfontfamily\KAI{Adobe Kaiti Std}
          102
            (End definition for \KAI. This function is documented on page 13.)
\FANGSONG
                    \newCJKfontfamily\FANGSONG{Adobe Fangsong Std}
          103
            (End definition for \FANGSONG. This function is documented on page 13.)
     \hei
                    \newcommand{\hei}[1]{{\HEI #1}}
          104
            (End definition for \hei. This function is documented on page 13.)
     \kai
                    \mbox{\newcommand}{\kai}[1]{{\KAI #1}}
            (End definition for \kai. This function is documented on page 13.)
\fangsong
                    \newcommand{\fangsong}[1]{{\FANGSONG #1}}
```

\setsansfont[Ligatures={Common,TeX}]{Droid Sans}

88

```
\else\fi
          107
                 \ifLuaTeX % LuaTeX 下使用 luatex-ja 处理字体 [推荐]
          108
                   \RequirePackage{luatexja-fontspec}
          109
                   % 英文字体
          110
                   \setmainfont[Ligatures={Common,TeX}]{Tex Gyre Termes}
          111
                   \setsansfont[Ligatures={Common,TeX}]{Droid Sans}
          112
                   \setmonofont{CMU Typewriter Text}
         113
                   \defaultfontfeatures{Mapping=tex-text,Scale=MatchLowercase}
          114
                   % 中文字体
          115
                   \setmainjfont[
          116
                    BoldFont={AdobeHeitiStd-Regular},
          117
                     ItalicFont={AdobeKaitiStd-Regular}]{AdobeSongStd-Light}
          118
                   \setsansjfont{AdobeKaitiStd-Regular}
         119
                   \defaultjfontfeatures{JFM=kaiming}
                   \newcommand\ziju[2]{\vbox{\ltjsetparameter{kanjiskip=#1} #2}}
          122
     \HEI
                   \newjfontfamily\HEI{AdobeHeitiStd-Regular}
         123
           (End definition for \HEI. This function is documented on page 13.)
     \KAI
                   \newjfontfamily\KAI{AdobeKaitiStd-Regular}
         124
           (End definition for \KAI. This function is documented on page 13.)
\FANGSONG
                   \newjfontfamily\FANGSONG{AdobeFangsongStd-Regular}
           (End definition for \FANGSONG. This function is documented on page 13.)
     \hei
                   \newcommand{\hei}[1]{{\jfontspec{AdobeHeitiStd-Regular} #1}}
          126
           (End definition for \hei. This function is documented on page 13.)
     \kai
                   \newcommand{\kai}[1]{{\jfontspec{AdobeKaitiStd-Regular} #1}}
         127
           (End definition for \kai. This function is documented on page 13.)
\fangsong
                   \newcommand{\fangsong}[1]{{\jfontspec{AdobeFangsongStd-Regular} #1}}
         128
```

(End definition for \fangsong. This function is documented on page 13.)

```
(End definition for \fangsong. This function is documented on page 13.)
       \else\fi
129
     Generate Chinese number using zhnumber.
       \RequirePackage{zhnumber}
130
       \def\CJKnumber#1{\zhnumber{#1}} % 兼容 CJKnumb
132 }
      Basic Format
 4
     We set global line spread to 1.3.
133 \linespread{1.3}\selectfont
     Use geometry package to handle paper page.
134 \RequirePackage{geometry}
   \geometry{
     top=1.77in,
136
     bottom=0.8in,
     left=1.1in,
138
     right=1.1in,
139
     includefoot
140
141 }
  \ifthenelse{\isundefined{\pagewidth}}{
     \pdfpagewidth=\paperwidth
     \pdfpageheight=\paperheight
144
145 }{
     \pagewidth=\paperwidth
     \pageheight=\paperheight
147
148 }
     Indent of paragraph and skip between paragraphs.
149 \RequirePackage{indentfirst}
150 \setlength{\parindent}{2em}
\setlength{\parskip}{Opt plus 2pt minus 1pt}
     Packages to handle color.
152 \RequirePackage{color}
153 \RequirePackage[table] {xcolor}
     Use hyperref package to generate cross-reference link.
154 \RequirePackage[unicode]{hyperref}
155 \hypersetup{
```

bookmarksnumbered=true,

```
bookmarksopen=true,
157
     bookmarksopenlevel=1,
     breaklinks=true,
159
     colorlinks=true,
160
     allcolors=black,
161
     linktoc=all,
162
     plainpages=false,
163
     pdfpagelabels=true,
164
     pdfstartview={XYZ null null 1},
165
     pdfinfo={Template.Info={hustthesis.cls v1.1 2013/07/01, Copyright (C) 2013-2014 by
166
167 }
```

5 Load Packages

Load packages for math.

```
168 \RequirePackage{amsmath,amssymb,amsfonts}
\RequirePackage[amsmath,amsthm,thmmarks,hyperref,thref]{ntheorem}
170 \RequirePackage{fancynum}
171 \setfnumgsym{\,}
\RequirePackage[lined,boxed,linesnumbered,ruled,vlined,algochapter]{algorithm2e}
     Load packages for picture.
173 \RequirePackage{overpic}
174 \RequirePackage{graphicx,caption,subcaption}
     Load packages for table.
175 \RequirePackage{array}
176 \RequirePackage{multirow,tabularx,ltxtable}
     Load package for code highlight. Here we use listings to highlight the
 code. But if you need more features, use minted.
177 \RequirePackage{listings}
     Load package for bibliography cite style.
178 \RequirePackage[numbers,square,comma,super,sort&compress]{natbib}
     Other packages for style setting.
179 \RequirePackage{titlesec}
180 \RequirePackage{titletoc}
181 \RequirePackage{tocvsec2}
182 \RequirePackage[inline]{enumitem}
183 \RequirePackage{fancyhdr}
184 \RequirePackage{afterpage}
```

```
185 \RequirePackage{datenumber}
186 \RequirePackage{etoolbox}
187 \RequirePackage{appendix}
188 \RequirePackage[titles]{tocloft}
189 \RequirePackage{xstring}
190 \RequirePackage{perpage}
```

6 Variables Setting

```
\zhtitle Commands to set the title.
 \entitle_191 \def\zhtitle#1{\gdef\HUST@zhtitle{#1}\hypersetup{pdftitle={#1}}}
   \title<sub>192</sub> \def\entitle#1{\gdef\HUST@entitle{#1}}
          193 \DeclareDocumentCommand\title{m g}
          194 {
               \IfNoValueTF{#2}{
          195
                  \zhtitle{#1}\entitle{#1}
          196
               }{
          197
                  \zhtitle{#1}\entitle{#2}
          198
               }
          199
          200 }
          201 \title{}{}
            (End definition for \zhtitle, \entitle, and \title. These functions are documented on page
            7.)
\zhauthor Commands to set the author.
\enauthor_202 \def\zhauthor#1{\gdef\HUST@zhauthor{#1}\hypersetup{pdfauthor={#1}}}
  \author<sub>203</sub> \def\enauthor#1{\gdef\HUST@enauthor{#1}}
          204 \DeclareDocumentCommand\author{m g}
          205 {
               \IfNoValueTF{#2}{
          206
                  \zhauthor{#1}\enauthor{#1}
          207
               }{
          208
                  \zhauthor{#1}\enauthor{#2}
               }
          210
          211 }
          212 \author{}{}
            (End definition for \zhauthor, \enauthor, and \author. These functions are documented on
            page 8.)
```

```
\date A command to set the date and several commands to display date.
\zhdateformat<sub>213</sub> \def\date#1#2#3{
\endateformat214
                   \setdate{#1}{#2}{#3}
 \dateformat 215 }
              216 \setdatetoday
              217 \def\zhdateformat{~\thedateyear~年~\thedatemonth~月~\thedateday~日}
              218 \def\endateformat{\datedate}
              219 \ifthenelse{\equal{\HUST@language}{chinese}}{
                   \let\dateformat\zhdateformat
              220
              221 }{
                   \let\dateformat\endateformat
              222
              223 }
                (End definition for \date and others. These functions are documented on page 16.)
\zhschoolname Commands to set the school name.
\enschoolname_224 \def\zhschoolname#1{\gdef\HUST@zhschoolname{#1}}
  \schoolname<sub>225</sub> \def\enschoolname#1{\gdef\HUST@enschoolname{#1}}
              226 \DeclareDocumentCommand\schoolname{m g}
              227 {
                   \IfNoValueTF{#2}{
              228
                     \zhschoolname{#1}\enschoolname{#1}
              229
                   }{
                     \zhschoolname{#1}\enschoolname{#2}
              231
                   }
              232
              233 }
              234 \schoolname{华中科技大学}{Huazhong University of Science~\char38~Tech-
                 nology}
                (End definition for \zhschoolname, \enschoolname, and \schoolname. These functions are
                documented on page 8.)
   \zhaddress Commands to set the address.
   \enaddress_235 \def\zhaddress#1{\gdef\HUST@zhaddress{#1}}
     \address<sub>236</sub> \def\enaddress#1{\gdef\HUST@enaddress{#1}}
              237 \DeclareDocumentCommand\address{m g}
              238 {
                   \IfNoValueTF{#2}{
              239
                     \zhaddress{#1}\enaddress{#1}
              240
                   }{
              241
                     \zhaddress{#1}\enaddress{#2}
                   }
              243
```

```
244 }
              245 \address{中国, 武汉, 430074}{Wuhan~430074, P.~R.~China}
                (End definition for \zhaddress, \enaddress, and \address. These functions are documented
                on page 8.)
 \zhapplyname Commands to custom apply name.
 \enapplyname_246 \def\zhapplyname#1{\def\HUST@zhapplyname{#1}}
   \applyname247 \def\enapplyname#1{\def\HUST@enapplyname{#1}}
              248 \DeclareDocumentCommand\applyname{m g}
                   \IfNoValueTF{#2}{
              250
              251
                      \enapplyname{#1}
                   }{
              252
                      \zhapplyname{#1}\enapplyname{#2}
              253
                   }
              255 }
                (End definition for \zhapplyname, \enapplyname, and \applyname. These functions are doc-
                umented on page 8.)
     \zhmajor Commands to set the major.
     \enmajor_256 \def\zhmajor#1{\gdef\HUST@zhmajor{#1}}
        \major257 \def\enmajor#1{\gdef\HUST@enmajor{#1}}
              258 \DeclareDocumentCommand\major{m g}
              259 {
                   \IfNoValueTF{#2}{
              260
                      \zhmajor{#1}\enmajor{#1}
              261
                   }{
              262
              263
                      \zhmajor{#1}\enmajor{#2}
                   }
              264
              265 }
              266 \major{}{}
                (End definition for \zhmajor, \enmajor, and \major. These functions are documented on page
                8.)
\zhsupervisor Commands to set the supervisor.
\ensupervisor_267 \def\zhsupervisor#1{\gdef\HUST@zhsupervisor{#1}}
  \supervisor268 \def\ensupervisor#1{\gdef\HUST@ensupervisor{#1}}
              269 \DeclareDocumentCommand\supervisor{m g}
              270 {
                   \IfNoValueTF{#2}{
              271
                      \zhsupervisor{#1}\ensupervisor{#1}
              272
```

```
\zhsupervisor{#1}\ensupervisor{#2}
                  274
                       }
                  275
                  276 }
                  277 \supervisor{}{}
                   (End definition for \zhsupervisor, \ensupervisor, and \supervisor. These functions are
                   documented on page 8.)
\zhasssupervisor Commands to set the asssupervisor.
\enasssupervisor<sub>278</sub> \def\zhasssupervisor#1{\gdef\HUST@zhasssupervisor{#1}}
  \asssupervisor279 \def\enasssupervisor#1{\gdef\HUST@enasssupervisor{#1}}
                  280 \DeclareDocumentCommand\asssupervisor{m g}
                  281 {
                       \IfNoValueTF{#2}{
                  282
                         \zhasssupervisor{#1}\enasssupervisor{#1}
                  283
                       }{
                  284
                         \zhasssupervisor{#1}\enasssupervisor{#2}
                  285
                  286
                  287 }
                  288 \asssupervisor{}{}
                   (End definition for \zhasssupervisor, \enasssupervisor, and \asssupervisor. These
                   functions are documented on page 9.)
     \schoolcode A command to set school code.
                  289 \def\schoolcode#1{\gdef\HUST@schoolcode{#1}}
                  290 \schoolcode{}
                   (End definition for \schoolcode. This function is documented on page 9.)
           \stuno A command to set student number.
                  291 \def\stuno#1{\gdef\HUST@stuno{#1}}
                  292 \stuno{}
                   (End definition for \stuno. This function is documented on page 9.)
         \classno A command to set classification number.
                  293 \def\classno#1{\gdef\HUST@classno{#1}}
                  294 \classno{}
                   (End definition for \classno. This function is documented on page 9.)
    \secretlevel A command to set secret level.
                  295 \def\secretlevel#1{\gdef\HUST@secretlevel{#1}}
                  296 \secretlevel{}
```

}{

273

```
(End definition for \secretlevel. This function is documented on page 9.)
\zhabstract Commands to set the abstract.
\enabstract<sub>297</sub> \long\def\zhabstract#1{\long\gdef\HUST@zhabstract{#1}}
  \abstract298 \long\def\enabstract#1{\long\gdef\HUST@enabstract{#1}}
            299 \DeclareDocumentCommand\abstract{+m +g}
                 \IfNoValueTF{#2}{
            301
                    \zhabstract{#1}\enabstract{#1}
            302
            303
                    \zhabstract{#1}\enabstract{#2}
            304
                 }
            306 }
            307 \abstract{}{}
              (End definition for \zhabstract, \enabstract, and \abstract. These functions are docu-
              mented on page 9.)
\zhkeywords Commands to set the keywords.
\enkeywords_308 \def\zhkeywords#1{\gdef\HUST@zhkeywords{#1}\hypersetup{pdfkeywords={#1}}}
  \keywords309 \def\enkeywords#1{\gdef\HUST@enkeywords{#1}}
            310 \DeclareDocumentCommand\keywords{m g}
            311 {
                 \IfNoValueTF{#2}{
                    \zhkeywords{#1}\enkeywords{#1}
            314
                    \zhkeywords{#1}\enkeywords{#2}
            315
                 }
            316
            317 }
            318 \keywords{}{}
              (End definition for \zhkeywords, \enkeywords, and \keywords. These functions are docu-
              mented on page 9.)
```

7 Localization

```
Chinese localization. 2

319 \ifthenelse{\equal{\HUST@language}{chinese}}{

320 \def\indexname{索引}}

321 \def\figurename{图}

2The autorefname Reference:http://tex.stackexchange.com/questions/52410/
how-to-use-the-command-autoref-to-implement-the-same-effect-when-use-the-comman
```

```
\def\tablename{表}
322
      \AtBeginDocument{\def\listingscaption{代码}}
      \def\bibname{参考文献}
324
      \def\contentsname{目\hspace{1em}录}
325
      \def\contentsnamenospace{目录}
326
      \def\appendixname{附录}
327
      \def\HUST@listfigurename{插图索引}
      \def\HUST@listtablename{表格索引}
329
      \def\equationautorefname{公式}
330
      \def\footnoteautorefname{脚注}
331
      \def\itemautorefname~#1\null{第~#1~项\null}
      \def\figureautorefname{图}
333
      \def\tableautorefname{表}
334
      \def\appendixautorefname{附录}
335
      \expandafter\def\csname\appendixname autorefname\endcsname{\ap-
336
  pendixname}
      \def\chapterautorefname~#1\null{第\zhnumber{#1}章\null}
337
      \def\sectionautorefname~#1\null{#1~小节\null}
338
      \def\subsectionautorefname~#1\null{#1~小节\null}
339
      \def\subsubsectionautorefname~#1\null{#1~小节\null}
340
      \def\FancyVerbLineautorefname~#1\null{第~#1~行\null}
      \def\pageautorefname~#1\null{第~#1~页\null}
      \def\lstlistingautorefname{代码}
343
      \def\definitionautorefname{定义}
344
      \def\propositionautorefname{命题}
345
      \def\lemmaautorefname{引理}
346
      \def\theoremautorefname{定理}
347
      \def\axiomautorefname{公理}
348
      \def\corollaryautorefname{推论}
349
      \def\exerciseautorefname{练习}
350
      \def\exampleautorefname{例}
      \def\proofautorefname{证明}
352
      \SetAlgorithmName{算法}{算法}{算法索引}
353
      \SetAlgoProcName{过程}{过程}
354
      \SetAlgoFuncName{函数}{函数}
      \def\AlgoLineautorefname~#1\null{第~#1~行\null}
357 }{}
     English localization.
  \ifthenelse{\equal{\HUST@language}{chinese}}{}{
      \def\HUST@listfigurename{List of Figures}
359
       \def\HUST@listtablename{List of Tables}
360
```

```
\def\equationautorefname{Equation}
       \def\footnoteautorefname{Footnote}
       \def\itemautorefname{Item}
363
       \def\figureautorefname{Figure}
364
       \def\tableautorefname{Table}
365
       \def\appendixautorefname{Appendix}
       \expandafter\def\csname\appendixname autorefname\endcsname{\ap-
  pendixname}
       \def\chapterautorefname{Chapter}
368
       \def\sectionautorefname{Section}
369
       \def\subsectionautorefname{Subsection}
       \def\subsubsectionautorefname{Sub-subsection}
       \def\FancyVerbLineautorefname{Line}
372
       \def\pageautorefname{Page}
373
       \def\lstlistingautorefname{Code Fragment}
374
       \def\definitionautorefname{Definition}
375
       \def\propositionautorefname{Proposition}
376
       \def\lemmaautorefname{Lemma}
377
       \def\theoremautorefname{Theorem}
378
       \def\axiomautorefname{Axiom}
379
       \def\corollaryautorefname{Corollary}
       \def\exerciseautorefname{Exercise}
       \def\exampleautorefname{Example}
382
       \def\proofautorefname{Proof}
383
       \SetAlgorithmName{Algorithm}{Algorithm}{List of Algorithms}
384
       \SetAlgoProcName{Procedure}{Procedure}
       \SetAlgoFuncName{Function}{Function}
386
       \def\AlgoLineautorefname{Line}
387
388 }
     Internal variables.
389 \def\HUST@classnotitle{{分}\hfill{类}\hfill{号}}
390 \def\HUST@stunotitle{学号}
391 \def\HUST@schoolcodetitle{学校代码}
392 \def\HUST@secrettile{密级}
393 \def\HUST@zhauthortitle{{学}\hfill{位}\hfill{申}\hfill{请}\hfill{人}}
  \def\HUST@zhmajortitle{{学}\hfill{科}\hfill{专}\hfill{业}}
  \def\HUST@zhsupervisortitle{{指}\hfill{导}\hfill{教}\hfill{师}}
396 \def\HUST@zhasssupervisortitle{{副}\hfill{指}\hfill{导}\hfill{教}\hfill{
  师}}
  \def\HUST@zhdatetitle{{答}\hfill{辩}\hfill{日}\hfill{期}}
```

308

```
399 \def\HUST@enauthortitle{Student}
  \def\HUST@enmajortitle{Major}
  \def\HUST@ensupervisortitle{Supervisor}
  \def\HUST@enasssupervisortitle{Co-Supervisor}
403
  \def\HUST@originaldeclare{独创性声明}
  \long\def\HUST@originaldeclaretext{
    本人声明所呈交的学位论文是我个人在导师的指导下进行的研究工作及取得的研
  究成果。尽我所知,除文中已标明引用的内容外,本论文不包含任何其他人或集体已
  经发表或撰写过的研究成果。对本文的研究做出贡献的个人和集体、均已在文中以明
  确方式标明。本人完全意识到本声明的法律结果由本人承担。
407 }
408 \def\HUST@zhauthorsig{学位论文作者签名:}
409 \def\HUST@zhdatefield{日期: \hspace{2em}年\hspace{2em}月\hspace{2em}
  日}
410
411 \def\HUST@authtitle{学位论文版权使用授权书}
412 \long\def\HUST@authorizationtext{
    本学位论文作者完全了解学校有关保留、使用学位论文的规定、即:学校有权保留
  并向国家有关部门或机构送交论文的复印件和电子版、允许论文被查阅和借阅。本人
  授权华中科技大学可以将本学位论文的全部或部分内容编入有关数据库进行检索,可
  以采用影印、缩印或扫描等复制手段保存和汇编本学位论文。
414 }
415 \long\def\HUST@authorizationaddon{
  本论文属于
   \tabincell{1}{
    保密$\square$, 在~\makebox[2em]{\hrulefill} 年解密后适用本授权书。\\
418
    不保密~$\square$。
119
420
  }
421 }
  \def\HUST@authorizationcheck{(请在以上方框内打"$\surd$")}
  \def\HUST@zhteachersig{指导教师签名: }
424
425 \def\HUST@zhabstractname{摘\hspace{1em}要}
  \def\HUST@zhabstractnamenospace{摘要}
  \def\HUST@zhkeywordstitle{关键词:}
  \def\HUST@enabstractname{Abstract}
  \def\HUST@enkeywordstitle{Key words:}
430
  \ifthenelse{\equal{\HUST@language}{chinese}}{
    \def\HUST@ackname{致\hspace{1em}谢}
```

```
\def\HUST@acknamenospace{致谢}
    \def\HUST@publicationtitle{攻读学位期间发表的学术论文}
434
435 }{
    \def\HUST@ackname{Acknowledge}
436
    \def\HUST@acknamenospace{Acknowledge}
437
    \def\HUST@publicationtitle{Publication}
438
439 }
440
   \ifthenelse{\equal{\HUST@degree}{none}}{
441
    \def\HUST@zhapplyname{学位论文}
442
    \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
  quirements for the Degree}
444 }{}
445
  \ifthenelse{\equal{\HUST@degree}{fyp}}{
446
    \def\HUST@zhapplyname{毕业设计论文}
    \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
  quirements for Final Year Project}
449 }{}
450
  \ifthenelse{\equal{\HUST@degree}{bachelor}}{
    \def\HUST@zhapplyname{学士学位论文}
    \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
453
  quirements for the Degree of Bachelor}
454 }{}
  \ifthenelse{\equal{\HUST@degree}{master}}{
    \def\HUST@zhapplyname{硕士学位论文}
157
    \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
  quirements for the Degree of Master}
  }{}
459
460
  \ifthenelse{\equal{\HUST@degree}{phd}}{
461
    \def\HUST@zhapplyname{博士学位论文}
462
    \def\HUST@enapplyname{A Thesis Submitted in Partial Fulfillment of the Re-
  quirements for the Degree of Philosophy}
464 }{}
465
  \ifthenelse{\equal{\HUST@language}{chinese}}{
    \hypersetup{pdfsubject={\HUST@zhschoolname\HUST@zhapplyname}}
468 }{
```

```
469 \hypersetup{pdfsubject={\HUST@enapplyname}}
470 }

Set \listfigurename and \listtablename.

471 \def\listfigurename{\HUST@listfigurename}

472 \def\listtablename{\HUST@listtablename}
```

8 Style Setting

8.1 Equation Style

Allow long equation breaking between lines or pages.

```
473 \allowdisplaybreaks[4]
```

Set skip between equation and context.

8.2 Theorem Style

We use amsthm to handle the proof environment and use ntheorem to handle other theorem environments.

```
479 \theoremnumbering{arabic}
  \ifthenelse{\equal{\HUST@language}{chinese}}{
     \theoremseparator{: }
482 }{
     \theoremseparator{:}
483
484 }
   \theorempreskip{1.2ex plus 0ex minus 1ex}
485
   \theorempostskip{1.2ex plus 0ex minus 1ex}
   \theoremheaderfont{\normalfont\bfseries\HEI}
   \theoremsymbol{}
489
  \theoremstyle{definition}
   \theorembodyfont{\normalfont}
  \ifthenelse{\equal{\HUST@language}{chinese}}{
     \newtheorem{definition}{定义}[chapter]
493
```

```
494 }{
     \newtheorem{definition}{Definition}[chapter]
496 }
497
   \theoremstyle{plain}
498
   \theorembodyfont{\itshape}
   \ifthenelse{\equal{\HUST@language}{chinese}}{
     \newtheorem{proposition}{命题}[chapter]
501
     \newtheorem{lemma}{引理}[chapter]
502
     \newtheorem{theorem}{定理}[chapter]
503
     \newtheorem{axiom}{公理}[chapter]
     \newtheorem{corollary}{推论}[chapter]
505
     \newtheorem{exercise}{练习}[chapter]
506
     \newtheorem{example}{例}[chapter]
507
     \def\proofname{\hei{证明}}
508
509 }{
     \newtheorem{proposition}{Proposition}[chapter]
510
     \newtheorem{lemma}{Lemma}[chapter]
511
     \newtheorem{theorem}{Theorem}[chapter]
512
     \newtheorem{axiom}{Axiom}[chapter]
513
     \newtheorem{corollary}{Corollary}[chapter]
     \newtheorem{exercise}{Exercise}[chapter]
515
     \newtheorem{example}{Example}[chapter]
516
     \def\proofname{\textbf{Proof}}}
517
518 }
```

8.3 Floating Objects Style

Set the skip to the context for floating object with argument 'h'.

\setlength{\intextsep}{0.7\baselineskip plus 0.1\baselineskip minus 0.1\baselineskip}

Set the skip to the context for top or bottom floating object.

\setlength{\textfloatsep}{0.8\baselineskip plus 0.1\baselineskip minus 0.2\baselineskip}

Set the fraction of floating object. Make the fraction less crowded than default value to prevent floating object occupying too much space.

```
\renewcommand{\textfraction}{0.15}

\renewcommand{\textfraction}{0.85}

\renewcommand{\bottomfraction}{0.65}

\renewcommand{\floatpagefraction}{0.60}
```

8.4 Table Style

```
\tabincell A command make it easier to insert a new table into an existing cell.
                  525 \newcommand{\tabincell}[2]{\begin{tabular}{@{}#1@{}}#2\end{tabular}}
                    (End definition for \tabincell. This function is documented on page ??.)
                        To prevent \cline breaking page in longtable environment, use in this
                    way: \(\langle table content \\\ \nopagebreak \cline{i-j}^3
                  526 \def\@cline#1-#2\@nil{%
                        \omit
                        \@multicnt#1%
                  528
                        \advance\@multispan\m@ne
                  529
                        \ifnum\@multicnt=\@ne\@firstofone{&\omit}\fi
                  530
                        \@multicnt#2%
                  531
                        \advance\@multicnt-#1%
                  532
                        \advance\@multispan\@ne
                        \leaders\hrule\@height\arrayrulewidth\hfill
                  534
                        \cr
                  535
                        \noalign{\nobreak\vskip-\arrayrulewidth}}
                  536
                        Here we set the global font setting (font size: 11pt and line spread: 1.4)
                    for tables. But first we will declare a variable to determine whether table
                    global font setting is activated.
                  537 \newif\ifHUST@useoldtabular
                  538 \HUST@useoldtabularfalse
OffTabFontSetting Use \TurnOffTabFontSetting to deactivate global font setting.
                  539 \def\TurnOffTabFontSetting{\HUST@useoldtabulartrue}
                    (End definition for \TurnOffTabFontSetting. This function is documented on page 19.)
nOnTabFontSetting Use \TurnOnTabFontSetting to activate global font setting.
                  540 \def\TurnOnTabFontSetting{\HUST@useoldtabularfalse}
                    (End definition for \TurnOnTabFontSetting. This function is documented on page 19.)
                        Hook the tabular, tabularx and longtable environment to imply the
                    global font setting.
                  541 \AtBeginEnvironment{tabular}{
                        \ifHUST@useoldtabular\else
                          \fontsize{11pt}{15.4pt}\selectfont
                   543
                       <sup>3</sup>Reference:http://tex.stackexchange.com/questions/52100/
                    longtable-multirow-problem-with-cline-and-nopagebreak
```

```
\fi
544
545 }
  \AtBeginEnvironment{tabularx}{
546
     \ifHUST@useoldtabular\else
       \fontsize{11pt}{15.4pt}\selectfont
548
     \fi
550 }
   \AtBeginEnvironment{longtable}{
     \ifHUST@useoldtabular\else
552
       \fontsize{11pt}{15.4pt}\selectfont
553
     \fi
555 }
```

8.5 Caption Style

Set caption font size as 11pt, use hang format, remove ':' after number and set the skip between context as 12pt.

```
font}
557 \DeclareCaptionLabelFormat{HUST@caplabel}{#1~#2}
558 \captionsetup{
    font=HUST@captionfont,
559
    labelformat=HUST@caplabel,
560
    format=hang,
561
    labelsep=quad,
    skip=12pt
563
564 }
    Set figure and table numbering style.
565 \renewcommand{\thetable}{\arabic{chapter}.\arabic{table}}
  \renewcommand{\thefigure}{\arabic{chapter}-\arabic{figure}}
```

8.6 Code Highlight Style

```
567 \definecolor{HUST@lstgreen}{rgb}{0,0.6,0}
568 \definecolor{HUST@lstmauve}{rgb}{0.58,0,0.82}
569
570 \lstset{
571  basicstyle=\footnotesize\ttfamily\linespread{1}\selectfont\FANGSONG,
572  keywordstyle=\color{blue}\bfseries,
573  commentstyle=\color{HUST@lstgreen}\itshape\KAI,
574  stringstyle=\color{HUST@lstmauve},
```

```
showspaces=false,
showstringspaces=false,
showtabs=false,
numbers=left,
numberstyle=\tiny\color{black},
frame=lines,
rulecolor=\color{black},
breaklines=true
sss }
```

8.7 Section Title Style

Set the numbering depth for section.

```
584 \setcounter{secnumdepth}{3}
```

Chapter tilte format and spacing setting.

```
\titleformat{\chapter}
586
       \bfseries
587
       \HEI
588
       \centering
       \fontsize{18pt}{23.4pt}\selectfont
     }
591
592
       \ifthenelse{\equal{\HUST@language}{chinese}}
593
       {\zhnumber{\thechapter}}
       {Chapter~\thechapter}
     }
596
     {1em}
597
     {}
599 \titlespacing*{\chapter}{0pt}{0pt}{20pt}
     Section tilte format and spacing setting.
600 \titleformat*{\section}{\bfseries\HEI\fontsize{16pt}{20.8pt}\select-
   font}
601 \titlespacing*{\section}{0pt}{18pt}{6pt}
     Subsection tilte format and spacing setting.
\label{lem:condition} $$  \ \star {\subsection}_{\bfseries} HEI\fontsize{14pt}_{18.2pt}\series} $$
   lectfont}
```

Subsubsection tilte format and spacing setting.

 $\verb| `title spacing*{\subsection}{0pt}{12pt}{6pt}|$

```
\titleformat*{\subsubsection}{\bfseries\HEI\fontsize{13pt}{16.9pt}\selectfont}
```

605 \titlespacing*{\subsubsection}{0pt}{12pt}{6pt}

8.8 TOC Style

TOC depth.

606 \setcounter{tocdepth}{1}

TOC right margin.

607 \contentsmargin{2.0em}

Remove vertical space between two continues chapter entries. ⁴

- 608 \newskip\HUST@oldcftbeforechapskip
- 609 \HUST@oldcftbeforechapskip=\cftbeforechapskip
- 610 \newskip\HUST@oldcftbeforesecskip
- 611 \HUST@oldcftbeforesecskip=\cftbeforesecskip
- 612 \let\HUST@oldl@chapter\l@chapter
- 613 \let\HUST@oldl@section\l@section
- 614 \let\HUST@oldl@subsection\l@subsection
- 615 \def\l@chapter#1#2{\HUST@oldl@chapter{#1}{#2}\cftbeforechapskip=3pt}
- def\l@section#1#2{\HUST@oldl@section{#1}{#2}\cftbeforechapskip=\HUST@oldcftbeforechapskip\cftbeforesecskip=3pt}
- \def\l@subsection#1#2{\HUST@oldl@subsection{#1}{#2}\cftbeforesecskip=\HUST@old-cftbeforesecskip}

Set LOF LOT style. ⁵

- 618 \renewcommand*\cftfigpresnum{\figurename^}
- 619 \newlength{\HUST@cftfignumwidth@tmp}
- 620 \settowidth{\HUST@cftfignumwidth@tmp}{\cftfigpresnum}
- 621 \addtolength{\cftfignumwidth}{\HUST@cftfignumwidth@tmp}
- 622 \renewcommand{\cftfigaftersnumb}{\quad~}
- 623 \renewcommand*\cfttabpresnum{\tablename^}
- 624 \newlength{\HUST@cfttabnumwidth@tmp}
- 625 \settowidth{\HUST@cfttabnumwidth@tmp}{\cfttabpresnum}
- 626 \addtolength{\cfttabnumwidth}{\HUST@cfttabnumwidth@tmp}
- 627 \renewcommand{\cfttabaftersnumb}{\quad~}

remove-vertical-space-between-two-chapters-in-table-of-contents-in-latex

⁴Reference:http://tex.stackexchange.com/questions/89103/

⁵Reference:http://www.latex-community.org/viewtopic.php?f=5&t=1838

8.9 Head & Foot Style

```
628 \let\ps@plain\ps@fancy
629 \pagestyle{fancy}
  \fancyhf{}
   \renewcommand{\headrulewidth}{Opt}
   \renewcommand{\footrulewidth}{0pt}
633
   \ifthenelse{\equal{\HUST@degree}{fyp}}{
     \fancyfoot[R]{\thepage}
636 }{
     \fancyfoot[C]{\thepage}
637
638
639
   \ifthenelse{\equal{\HUST@language}{english-draft}}{}{
     \ifHUST@finalformat\else
       \fancyhead[C]{
642
         \ziju{1em}{\kai{\fontsize{14pt}{18.2pt}\selectfont\HUST@zhschool-
643
   name\HUST@zhapplyname}}
         \vskip -5pt
         \vbox{
645
            \hrule width \textwidth height 2pt
646
         }
647
648
       }
     \fi
649
650 }
```

8.10 List Environment Style

```
\setlist{noitemsep,partopsep=0pt,topsep=.8ex}
\setlist[1]{labelindent=\parindent}
\setlist[enumerate,1]{label=\arabic*.,ref=\arabic*}
\setlist[enumerate,2]{label*=\arabic*,ref=\theenumi.\arabic*}
\setlist[enumerate,3]{label=\emph{\alph*}),ref=\theenumii\emph{\alph*}}
\setlist[description]{font=\bfseries\HEI}
```

8.11 Footnote Style

657 \MakePerPage{footnote}

9 Specical Page

```
\frontmatter
\mainmatter
\backmatter
```

```
\def\frontmatter{
     \clearpage
     \@mainmatterfalse
660
     \pagenumbering{Roman}
661
662 }
   \def\mainmatter{
663
     \clearpage
     \@mainmattertrue
665
     \pagenumbering{arabic}
666
667 }
   \def\backmatter{
668
     \clearpage
     \@mainmatterfalse
670
     \settocdepth{chapter}
671
     \hypersetup{bookmarksopenlevel=0}
672
673 }
 (End definition for \frontmatter, \mainmatter, and \backmatter. These functions are doc-
 umented on page 17.)
     Chinese title page.
674 \def\HUST@zhtitlepage{
     \begin{center}
675
     \vspace*{-1.0cm}
676
     \parbox[t][2.2cm][t]{\textwidth}{
677
       \begin{center}
678
         \setlength{\tabcolsep}{0pt}
679
         \setlength{\extrarowheight}{12pt}
680
         \TurnOffTabFontSetting
681
         \fontsize{14pt}{16.8pt}\selectfont
682
         \begin{tabularx}{\textwidth}{p{4em}p{5em}Xp{2em}p{12em}}
683
            \HUST@classnotitle
                                    & \mbox[5em][1]{\rule[-2.0pt]{5em}{1pt}\hspace{-5em}
684
            \HUST@stunotitle
                                    & \mbox[12em][1]{\rule[-2.0pt]{12em}{1pt}\hspace{-1}}
685
            \HUST@schoolcodetitle & \makebox[5em][1]{\rule[-2.0pt]{5em}{1pt}\hspace{-5em
686
           \HUST@secrettile
                                    & \mbox[12em][1]{\rule[-2.0pt]{12em}{1pt}\hspace{-1}
         \end{tabularx}
688
         \TurnOnTabFontSetting
689
       \end{center}
690
       }
691
     \parbox[t][6cm][t]{\textwidth}{
692
       \vspace{1.0cm}
693
       \begin{center}
694
       \includegraphics[scale=1.1]{hust-title.pdf}\\[0.8cm]
695
```

```
\ziju{10bp}{\fontsize{42pt}{54.6pt}\selectfont\HEI\HUST@zhapply-
   name}
       \end{center}
697
     }
698
     \parbox[t][4.8cm][t]{.8\textwidth}{
699
       \vspace{1.4cm}
700
       \begin{center}
       \fontsize{22pt}{35.2pt}\selectfont\hei{\HUST@zhtitle}
702
       \end{center}
703
704
     \parbox[t][7.4cm][t]{\textwidth}{
705
       \vspace{1.2cm}
       \begin{center}
707
       \fontsize{18pt}{27.0pt}\selectfont
708
       \setlength{\extrarowheight}{Opt}
709
       \TurnOffTabFontSetting
710
       \begin{tabular}{p{5em}@{{: \hspace{1em}}}1}
711
       \HUST@zhauthortitle
                                    & {\HUST@zhauthor} \\
712
       \HUST@zhmajortitle
                                 & {\HUST@zhmajor} \\
713
       \HUST@zhsupervisortitle & {\HUST@zhsupervisor} \\
714
       \ifthenelse{\equal{\HUST@zhasssupervisor}{}}{}{
         \HUST@zhasssupervisortitle & {\HUST@zhasssupervisor} \\
716
       }
717
       \HUST@zhdatetitle & \zhdateformat
718
       \end{tabular}
719
       \TurnOnTabFontSetting
720
       \end{center}
721
722
     \end{center}
723
724 }
     English title page.
   \def\HUST@entitlepage{
     \begin{center}
726
       \protect\ [t] [4.5cm] [t] {.9\textwidth}{
727
         \begin{center}
728
           \fontsize{16pt}{17.6pt}\selectfont
729
           \HUST@enapplyname
730
         \end{center}
       }
732
       \parbox[t][5.7cm][t]{\textwidth}{
733
         \begin{center}
734
```

```
\fontsize{18pt}{23.4pt}\selectfont
           \textbf{\textsf{\HUST@entitle}}
         \end{center}
737
       }
738
       \parbox[t][5cm][t]{.8\textwidth}{
739
         \begin{center}
740
         \setlength{\extrarowheight}{5pt}
         \fontsize{16pt}{24.0pt}\selectfont
742
         \TurnOffTabFontSetting
743
         \begin{tabular}{l0{~:~}p{18em}}
744
            \HUST@enauthortitle
                                      & {\HUST@enauthor} \\
            \HUST@enmajortitle
                                      & {\HUST@enmajor} \\
            \HUST@ensupervisortitle & {\HUST@ensupervisor}
747
           \ \left( \operatorname{HUST0enasssupervisor} \right) 
748
              \\ \HUST@enasssupervisortitle & {\HUST@enasssupervisor}
749
           }
750
         \end{tabular}
751
         \TurnOnTabFontSetting
752
         \end{center}
753
       }
754
       \parbox[t][7cm][b]{.8\textwidth}{
         \begin{center}
         \bfseries
757
         \fontsize{14pt}{28.0pt}\selectfont
758
         \HUST@enschoolname \\
759
         \HUST@enaddress \\
760
         \endateformat
761
       \end{center}
762
763
     \end{center}
764
765 }
     Copyright page.
766 \def\HUST@authorization{
     \centerline{\fontsize{16pt}{20.8pt}\selectfont \HEI \HUST@originalde-
   clare}
     \vspace{1cm}
768
769
       \fontsize{12pt}{24.0pt}\selectfont
770
       \indent\HUST@originaldeclaretext
771
772
     \\[1.9cm]
773
```

```
\fontsize{12pt}{18.0pt}\selectfont
           775
                  \TurnOffTabFontSetting
           776
                  \hfill\begin{tabular}{ll}
                      \HUST@zhauthorsig & \hspace{2em}\\
          778
                      \HUST@zhdatefield & \hspace{2em}\\
           779
                  \end{tabular}
           780
                  \TurnOnTabFontSetting
           781
                }
          782
                \\[1.9cm]
           783
                \centerline{\fontsize{16pt}{20.8pt}\selectfont \HEI \HUST@authti-
             tle}
                \\[1cm]
           785
          786
                  \fontsize{12pt}{24.0pt}\selectfont
          787
                  \indent\HUST@authorizationtext \\
           788
                  \indent\HUST@authorizationaddon \\
           789
                  \indent\HUST@authorizationcheck
           790
                }
           791
                \\[1.9cm]
           792
                \hspace{2em}\parbox[t]{.9\textwidth}{
                  \fontsize{12pt}{18.0pt}\selectfont
           794
                  \TurnOffTabFontSetting
           795
                  \begin{tabular}{11}
           796
                      \HUST@zhauthorsig & \hspace{2em}\\
           797
                      \HUST@zhdatefield & \hspace{2em}\\
           798
                  \end{tabular}
          799
                  \hfill
          800
                  \begin{tabular}{11}
          801
                       \HUST@zhteachersig & \hspace{2em}\\
          802
                      \HUST@zhdatefield & \hspace{2em}\\
                  \end{tabular}
          804
                  \TurnOnTabFontSetting
          805
                }
          806
                \vfill
          808 }
\maketitle Commands to generate title page.
\makecover<sub>809</sub> \def\maketitle{
                \newgeometry{
                  top=1.2in,
```

\parbox[t]{\textwidth}{

```
bottom=1.2in,
812
813
       left=1in,
       right=1in,
814
     }
815
     \let\HUST@oldthepage\thepage
816
     \ifthenelse{\equal{\HUST@language}{english-draft}}
817
     {\def\thepage{Titlepage}}
818
     {\def\thepage{封面}}
819
     \begin{titlepage}
820
       \ifthenelse{\equal{\HUST@language}{english-draft}}{}{
821
          \thispagestyle{empty}
          \HUST@zhtitlepage
          \clearpage
824
       }
825
       \thispagestyle{empty}
826
       \HUST@entitlepage
827
     \end{titlepage}
828
     \ifthenelse{\equal{\HUST@language}{english-draft}}{}{
829
       \def\thepage{版权页}
830
       \thispagestyle{empty}
831
       \HUST@authorization
       \clearpage
833
     }
834
     \restoregeometry
835
     \let\thepage\HUST@oldthepage
836
     \setcounter{page}{1}
838 }
839 \let\makecover\maketitle
  (End definition for \maketitle and \makecover. These functions are documented on page 17.)
     Chinese abstract page.
   \def\HUST@zhabstractpage{
     \chapter*{\HUST@zhabstractname}
     \begingroup
     \fontsize{10.5pt}{13.7pt}\selectfont
843
     \HUST@zhabstract \par
844
     \vskip 1.2ex
845
     \noindent\hei{\HUST@zhkeywordstitle}\hspace{.8em} \HUST@zhkeywords
     \endgroup
847
848 }
     English abstract page.
```

```
849 \def\HUST@enabstractpage{
                      \chapter*{\textsf{\HUST@enabstractname}}
                      \begingroup
                 851
                      \fontsize{10.5pt}{13.7pt}\selectfont
                 852
                      \HUST@enabstract \par
                 853
                      \vskip 1.2ex
                      \noindent\textbf{\HUST@enkeywordstitle}\hspace{.8em} \HUST@enkey-
                    words
                      \endgroup
                 856
                 857 }
   \makeabstract A command to generate abstract page.
                    \def\makeabstract{
                      \phantomsection
                 250
                      \ifthenelse{\equal{\HUST@language}{chinese}}{
                 860
                        \addcontentsline{toc}{chapter}{\HUST@zhabstractnamenospace}
                 861
                      }{
                        \addcontentsline{toc}{chapter}{\HUST@enabstractname}
                 863
                      }
                 864
                      \ifthenelse{\equal{\HUST@language}{english-draft}}{}{
                 865
                        \HUST@zhabstractpage
                 866
                        \clearpage
                      }
                 868
                      \HUST@enabstractpage
                 869
                      \clearpage
                 870
                 871 }
                   (End definition for \makeabstract. This function is documented on page 17.)
\tableofcontents A command to generate table of contents.
                 872 \let\HUST@tableofcontents\tableofcontents
                    \def\tableofcontents{
                      \ifthenelse{\equal{\HUST@language}{chinese}}{
                        \pdfbookmark{\contentsnamenospace}{\contentsnamenospace}
                 875
                      }{
                 876
                         \pdfbookmark{\contentsname}{\contentsname}
                 877
                 878
                      \HUST@tableofcontents
                      \clearpage
                 880
                 881 }
                   (End definition for \tableofcontents. This function is documented on page 17.)
```

```
ack A command to generate acknowledge page.
             882 \newenvironment{ack}{
                  \clearpage
                  \phantomsection
             884
                  \addcontentsline{toc}{chapter}{\HUST@acknamenospace}
             885
                  \chapter*{\HUST@ackname}
             886
                  \begingroup
                  \fontsize{10.5pt}{13.7pt}\selectfont
             889 }{
                  \endgroup
             890
             891 }
               A command to generate publications page.
publications
                \newenvironment{publications}{
                  \clearpage
             893
                  \ifHUST@inappendix
             894
                    \chapter{\HUST@publicationtitle}
             895
                  \else
                    \phantomsection
             897
                    \addcontentsline{toc}{chapter}{\HUST@publicationtitle}
             898
                    \chapter*{\HUST@publicationtitle}
             899
                  \fi
             900
                  \begin{enumerate}[labelindent=Opt,label={[\arabic*]},itemsep=0.5ex]
                  \fontsize{10.5pt}{10.5pt}\selectfont
             903 }{
                  \end{enumerate}
             905 }
\bibliography A command to generate bibliography page.
             906 \bibliographystyle{hustthesis}
                \let\HUST@bibliography\bibliography
                \def\bibliography#1{
                  \clearpage
             909
                  \phantomsection
             910
                  \addcontentsline{toc}{chapter}{\bibname}
             911
                  \begingroup
             912
                  \fontsize{10.5pt}{10.5pt}\selectfont
             913
                  \setlength\bibsep{0.5ex}
                  \HUST@bibliography{#1}
             915
                  \endgroup
             916
```

917 }

appendix The appendix environment.

```
918 \newif\ifHUST@inappendix
  \HUST@inappendixfalse
   \newif\ifHUST@appendix@resetmainmatter
   \HUST@appendix@resetmainmatterfalse
   \renewenvironment{appendix}{
     \if@mainmatter
923
       \HUST@appendix@resetmainmatterfalse
924
     \else
925
       \HUST@appendix@resetmainmattertrue
926
       \@mainmattertrue
927
     \fi
928
     \appendixtitletocon
929
     \appendices
930
     \titleformat{\chapter}
931
932
       \bfseries\HEI
933
       \centering
934
       \fontsize{18pt}{23.4pt}\selectfont
935
     }
936
     {\appendixname\,\thechapter}
937
     {1em}
938
     {}
939
     \HUST@inappendixtrue
941 }{
     \endappendices
942
     \HUST@inappendixfalse
943
     \ifHUST@appendix@resetmainmatter
944
       \HUST@appendix@resetmainmatterfalse
945
       \@mainmatterfalse
     \else\fi
947
948 }
```

\listoffigures A command to generate list of figures.

```
949 \let\HUST@listoffigures\listoffigures
950 \def\listoffigures{
951  \clearpage
952  \ifHUST@inappendix
953  \addtocounter{chapter}{1}
```

```
\def\listfigurename{\appendixname\,\thechapter\hspace{1em}\HUST@listfigurename}
                   \else
             955
                     \def\listfigurename{\HUST@listfigurename}
             956
                   \fi
             957
                   \phantomsection
             958
                   \ifHUST@inappendix
                     \addcontentsline{toc}{chapter}{\thechapter\hspace{1em}\HUST@list-
                figurename}
                   \else
             961
                     \addcontentsline{toc}{chapter}{\listfigurename}
             962
                   \fi
                   \HUST@listoffigures
                   \def\listfigurename{\HUST@listfigurename}
             965
             966 }
               (End definition for \listoffigures. This function is documented on page 18.)
\listoftables A command to generate list of tables.
             967 \let\HUST@listoftables\listoftables
                \def\listoftables{
                   \clearpage
             969
                   \ifHUST@inappendix
                     \addtocounter{chapter}{1}
                     \def\listtablename{\appendixname\,\thechapter\hspace{1em}\HUST@listtablename}
             972
                   \else
             973
                     \def\listtablename{\HUST@listtablename}
             974
                   \fi
             975
                   \phantomsection
             976
                   \ifHUST@inappendix
             977
                     \addcontentsline{toc}{chapter}{\thechapter\hspace{1em}\HUST@list-
             978
                tablename}
                   \else
                     \addcontentsline{toc}{chapter}{\listtablename}
             981
                   \HUST@listoftables
             982
                   \def\listtablename{\HUST@listtablename}
             984 }
```

(End definition for \listoftables. This function is documented on page 18.)

10 Other Command

```
\email

985 \def\email#1{

986 \href{mailto:#1}{\texttt{#1}}

987 }

(End definition for \email. This function is documented on page 19.)

988 %</class>
```

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VI Change History

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General: Initial version 1	v1.3
v1.1 General: Add language option 1 Pack template using dtx and	General: Fix for XHATEX
ins file	General: Add command to
v1.2	custom apply name field 1
General: Fix for TeXLive 2016.	Minor update to fulfill school
Remove interfaces and	requirement 1