### LOREM IPSUM DOLOR SIT AMET, CONSECTETUR

**ADIPISCING ELIT.**

A **Thesis**

Submitted in Partial Fulfillment of the Requirements for the Degree of **Doctor of Philosophy**

*by*

***AUTHOR***

Roll No: PXXXXXXXX

*under the supervision of*

Supervisor 1

Supervisor 2



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

**NATIONAL INSTITUTE OF TECHNOLOGY CALICUT**

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February 2023

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*I would like to dedicate this thesis to my loving parents . . .*

v

## Acknowledgements

And I would like to acknowledge ...

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## Declaration

I hereby declare that except where specific reference is made to the work of others, the contents of this thesis are original and have not been submitted in whole or in part for consideration for any other degree or qualification in this, or any other university. This thesis is my own work and contains nothing which is the outcome of work done in collaboration with others, except as specified in the text and Acknowledgements.

Signature :

Name : AUTHOR

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## Certificate

This is to certify that the thesis entitled **Lorem ipsum dolor sit amet, consectetur adipiscing elit.** submitted by **AUTHOR** to National Institute of Technology Calicut for the award of the degree of Doctor of Philosophy is a bonafide record of the research work carried out by her under our supervision and guidance. The content of the thesis, in full or parts have not been submitted to any other institute or university for the award of any degree or diploma.

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## Thesis Evaluation

This is to certify that **Ms. AUTHOR** (Roll No: PXXXXXXXX) has successfully defended the Thesis entitled **Lorem ipsum dolor sit amet, consectetur adipiscing elit.** on / /

The committee recommends the candidate for the award of the degree of

##### Doctor of Philosophy.



Signature of External Examiner Signature of Internal Examiner

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## Abstract

This part of the thesis will be the most widely published and most read because it will be published in Dissertation Abstracts International. It is best written towards the end, but not at the very last minute because you will probably need several drafts. It should be a distillation of the thesis: a concise description of the problem(s) addressed and your method of solving it/them, your results and conclusions. An abstract must be self- contained. Usually they do not contain references. When a reference is necessary, its details should be included in the text of the abstract. The number of words may be limited to 1000 not exceeding two pages of spacing 1.5 and font type Times New Roman with size 11. The abstract should be followed by the keywords (index terms) in the same page with the title Keywords in bold face and italics

***Keywords*** :- Keyword1, Keyword2

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# Nomenclature

##### Roman Symbols

*F* complex function

##### Greek Symbols

*γ* a simply closed curve on a complex plane

*ι* unit imaginary number √−1

*π* ≃ 3*.*14 *. . .*

##### Superscripts

*j* superscript index

##### Subscripts

0 subscript index

crit Critical state

##### Other Symbols

H*γ* integration around a curve *γ*

##### Acronyms / Abbreviations

ALU Arithmetic Logic Unit BEM Boundary Element Method

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CD Contact Dynamics

CFD Computational Fluid Dynamics

*CIF* Cauchy’s Integral Formula CK Carman - Kozeny

DEM Discrete Element Method DKT Draft Kiss Tumble

DNS Direct Numerical Simulation EFG Element-Free Galerkin

FEM Finite Element Method FLOP Floating Point Operations FPU Floating Point Unit

FVM Finite Volume Method GPU Graphics Processing Unit LBM Lattice Boltzmann Method LES Large Eddy Simulation MPM Material Point Method MRT Multi-Relaxation Time

PCI Peripheral Component Interconnect PFEM Particle Finite Element Method PIC Particle-in-cell

PPC Particles per cell

RVE Representative Elemental Volume

Nomenclature xxi

SH Savage Hutter

SM Streaming Multiprocessors USF Update Stress First

USL Update Stress Last

**Chapter 1**

# Introduction

### What is loren ipsum? Title with math *σ*

Lorem Ipsum is simply dummy text of the printing and typesetting industry (see Section [1.3](#_heading=h.17dp8vu)). Lorem Ipsum [[1](#_heading=h.41mghml)] has been the industry’s standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like including versions of Lorem Ipsum [[2](#_heading=h.2grqrue)–[4](#_heading=h.vx1227)].

The most famous equation in the world: *E*2 = (*m*0*c*2)2 + (*pc*)2, which is known

as the **energy-mass-momentum** relation as an in-line equation.

A *LATEX class file* is a file, which holds style information for a particular LATEX.

*j* 1 I

*F j*(*z*)



*CIF* : *F*0 (*a*) = 2*πι*

0

*γ z* − *a*

*dz* (1.1)

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2 Introduction

### Why do we use loren ipsum?

It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using ‘Content here, content here’, making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for ‘lorem ipsum’ will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like).

### Where does it come from?

Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet..", comes from a line in section 1.10.32.

The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those interested. Sections 1.10.32 and 1.10.33 from “de Finibus Bonorum et Malorum" by Cicero are also reproduced in their exact original form, accompanied by English versions from the 1914 translation by H. Rackham

“Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."

Introduction 3

Section 1.10.32 of “de Finibus Bonorum et Malorum", written by Cicero in 45 BC: “Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium do- loremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?"

1914 translation by H. Rackham: “But I must explain to you how all this mistaken

idea of denouncing pleasure and praising pain was born and I will give you a complete account of the system, and expound the actual teachings of the great explorer of the truth, the master-builder of human happiness. No one rejects, dislikes, or avoids pleasure itself, because it is pleasure, but because those who do not know how to pursue pleasure rationally encounter consequences that are extremely painful. Nor again is there anyone who loves or pursues or desires to obtain pain of itself, because it is pain, but because occasionally circumstances occur in which toil and pain can procure him some great pleasure. To take a trivial example, which of us ever undertakes laborious physical exercise, except to obtain some advantage from it? But who has any right to find fault with a man who chooses to enjoy a pleasure that has no annoying consequences, or one who avoids a pain that produces no resultant pleasure?"

Section 1.10.33 of “de Finibus Bonorum et Malorum", written by Cicero in 45

BC: “At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis prae- sentium voluptatum deleniti atque corrupti quos dolores et quas molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga. Et harum quidem rerum facilis est et expedita distinctio. Nam libero tempore, cum soluta nobis est eligendi optio cumque nihil impedit quo minus id quod maxime placeat facere possimus, omnis voluptas assumenda est, omnis dolor repellendus. Temporibus autem quibusdam et aut officiis

4 Introduction

debitis aut rerum necessitatibus saepe eveniet ut et voluptates repudiandae sint et molestiae non recusandae. Itaque earum rerum hic tenetur a sapiente delectus, ut aut reiciendis voluptatibus maiores alias consequatur aut perferendis doloribus asperiores repellat."

1914 translation by H. Rackham: “On the other hand, we denounce with righteous indignation and dislike men who are so beguiled and demoralized by the charms of pleasure of the moment, so blinded by desire, that they cannot foresee the pain and trouble that are bound to ensue; and equal blame belongs to those who fail in their duty through weakness of will, which is the same as saying through shrinking from toil and pain. These cases are perfectly simple and easy to distinguish. In a free hour, when our power of choice is untrammelled and when nothing prevents our being able to do what we like best, every pleasure is to be welcomed and every pain avoided. But in certain circumstances and owing to the claims of duty or the obligations of business it will frequently occur that pleasures have to be repudiated and annoyances accepted. The wise man therefore always holds in these matters to this principle of selection: he rejects pleasures to secure other greater pleasures, or else he endures pains to avoid worse pains."

**Chapter 2**

# My second chapter

### Reasonably long section title

I’m going to randomly include a picture Figure [2.1](#_heading=h.1ksv4uv).

If you have trouble viewing this document contact Krishna at: [kks32@cam.ac.uk](mailto:kks32@cam.ac.uk) or raise an issue at <https://github.com/kks32/phd-thesis-template/>

### Enumeration

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5

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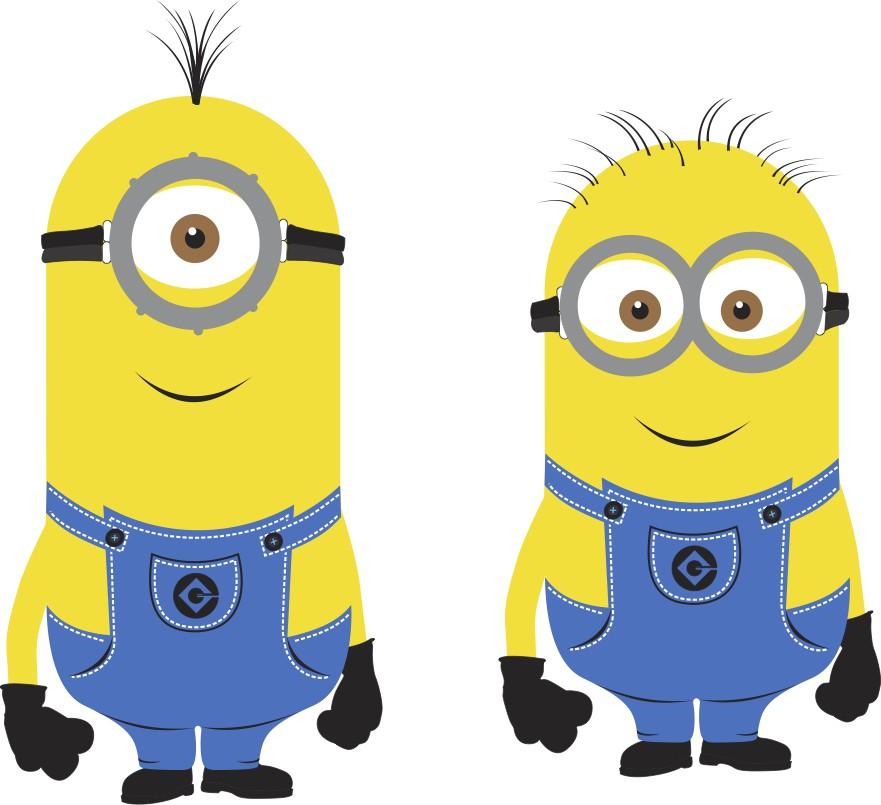


Fig. 2.1 This is just a long figure caption for the minion in Despicable Me from Pixar

My second chapter 7

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1. The first topic is dull
2. The second topic is duller
   1. The first subtopic is silly
   2. The second subtopic is stupid
3. The third topic is the dullest

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### Itemize

* The first topic is dull
* The second topic is duller
  + The first subtopic is silly
  + The second subtopic is stupid
* The third topic is the dullest

### Description

**The first topic** is dull

**The second topic** is duller

**The first subtopic** is silly

**The second subtopic** is stupid

**The third topic** is the dullest

My second chapter 9

### Hidden section

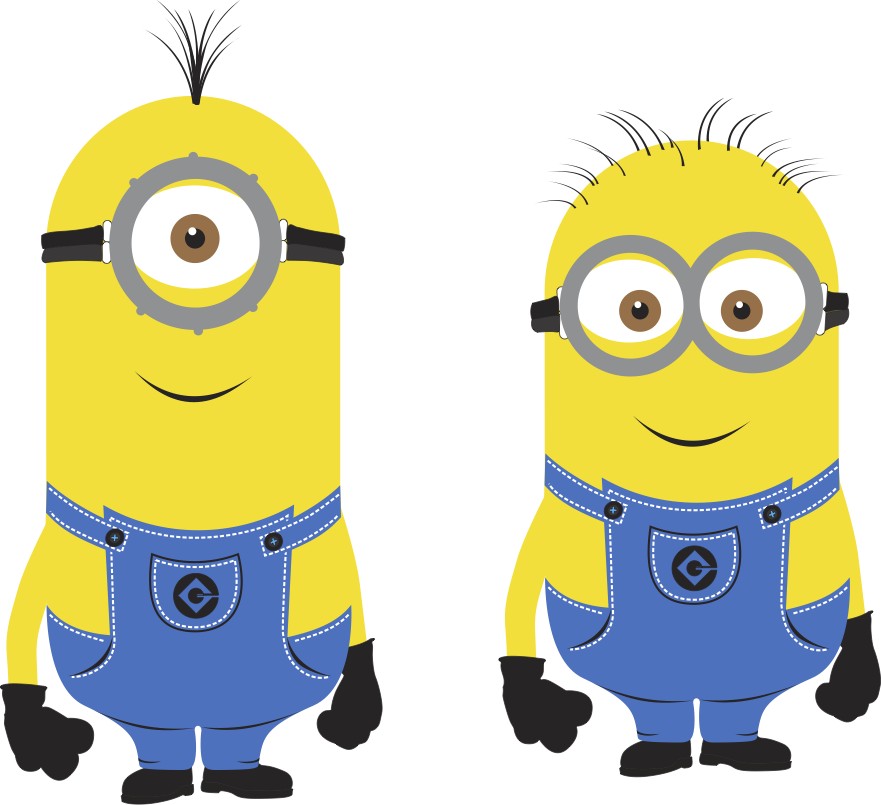
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1My footnote goes blah blah blah! . . .



### Subplots

(a) Tom and Jerry (b) Wall-E (c) Minions

Fig. 2.2 Best Animations



I can cite Wall-E (see Fig. [2.2b](#_heading=h.z337ya)) and Minions in me (Fig. [2.2c](#_heading=h.z337ya)) or I can cite the whole figure as Fig. [2.2](#_heading=h.z337ya)

**Chapter 3**

# My third chapter

### First section of the third chapter

And now I begin my third chapter here . . .

#### First subsection in the first section

. . . and some more

#### Second subsection in the first section

. . . and some more . . .

##### First subsub section in the second subsection

. . . and some more in the first subsub section otherwise it all looks the same doesn’t it? well we can add some text to it . . .

#### Third subsection in the first section

. . . and some more . . .

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12 My third chapter

##### First subsub section in the third subsection

. . . and some more in the first subsub section otherwise it all looks the same doesn’t it? well we can add some text to it and some more and some more and some more and some more and some more and some more and some more . . .

##### Second subsub section in the third subsection

. . . and some more in the first subsub section otherwise it all looks the same doesn’t it? well we can add some text to it . . .

### Second section of the third chapter

and here I write more . . .

### The layout of formal tables

This section has been modified from “Publication quality tables in LATEX\*” by Simon Fear.

The layout of a table has been established over centuries of experience and should only be altered in extraordinary circumstances.

When formatting a table, remember two simple guidelines at all times:

1. Never, ever use vertical rules (lines).
2. Never use double rules.

These guidelines may seem extreme but I have never found a good argument in favour of breaking them. For example, if you feel that the information in the left half of a table is so different from that on the right that it needs to be separated by a vertical line, then you should use two tables instead. Not everyone follows the second guideline:

There are three further guidelines worth mentioning here as they are generally not known outside the circle of professional typesetters and subeditors:

My third chapter 13

Table 3.1 A badly formatted table

|  | Species I Species II | | | |
| --- | --- | --- | --- | --- |
| Dental measurement | mean | SD | mean | SD |
| I1MD | 6.23 | 0.91 | 5.2 | 0.7 |
| I1LL | 7.48 | 0.56 | 8.7 | 0.71 |
| I2MD | 3.99 | 0.63 | 4.22 | 0.54 |
| I2LL | 6.81 | 0.02 | 6.66 | 0.01 |
| CMD | 13.47 | 0.09 | 10.55 | 0.05 |
| CBL | 11.88 | 0.05 | 13.11 | 0.04 |

Table 3.2 A nice looking table



Dental measurement Species I Species II

1. Put the units in the column heading (not in the body of the table).
2. Always precede a decimal point by a digit; thus 0.1 *not* just .1.
3. Do not use ‘ditto’ signs or any other such convention to repeat a previous value. In many circumstances a blank will serve just as well. If it won’t, then repeat the value.

A frequently seen mistake is to use ‘\begin{center}’ . . . ‘\end{center}’ inside a figure or table environment. This center environment can cause additional vertical space. If you want to avoid that just use ‘\centering’

14 My third chapter

Table 3.3 Even better looking table using booktabs Dental measurement Species I Species II

**Details of the Visible output from the Thesis**

### Refereed Journals

* H. Liu and B. He. VMbuddies: “Coordinating Live Migration of Multi-Tier Applications in Cloud Environments”. In *IEEE Transactions on Parallel and Distributed Systems*, 2014.

***Under Review***

* J. J. Dongarra, P. Luszczek, and A. Petitet. “The LINPACK benchmark: Past, present, and future.” *In Concurrency and Computation: Practice and Experience*, 2003

### Refereed Conferences

* J. J. Dongarra, P. Luszczek, and A. Petitet. “The LINPACK benchmark: Past, present, and future.” *In Concurrency and Computation: Practice and Experience*, 2003

### Related Papers Published

* R. Singh, D. Irwin, P. Shenoy, and K. K. Ramakrishnan. Yank: “Enabling Green Data Centers to Pull the Plug”. In *NSDI*, 2013

15

### Patents granted

•

### Software copyrights granted

•

### Technology Transfer executed

•

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# References

1. B. Aupetit, *A Primer on Spectral Theory*. New York: Springer-Verlag, 1991.
2. Y. A. Abramovich, C. D. Aliprantis, and O. Burkinshaw, “Another characteriza- tion of the invariant subspace problem,” *Operator Theory in Function Spaces and Banach Lattices.* The A.C. Zaanen Anniversary Volume*, Operator Theory: Advances and Applications*, vol. 75, no. 1, pp. 15–31, 1995, birkhäuser Verlag.
3. J. B. Conway, *A Course in Functional Analysis*, 2nd ed. New York: Springer- Verlag, 1990.
4. J. I. Ljubicˇ and V. I. Macaev, “On operators with a separable spectrum,” *Amer. Math. Soc. Transl. (2)*, vol. 47, pp. 89–129, 1965.
5. Z. Zhang, L. Xiao, X. Chen, and J. Peng, “A Scheduling Method for Multiple Virtual Machines Migration in Cloud,” in *Proceedings of the 10th IFIP Inter- national Conference on Network and Parallel Computing - Volume 8147*, ser. NPC 2013. New York, NY, USA: Springer-Verlag New York, Inc., 2013, pp. 130–142.
6. M. R. Rahman, I. Aib, and R. Boutaba, “Survivable virtual network embedding,” in *NETWORKING 2010*, ser. Lecture Notes in Computer Science, M. Crovella,

L. Feeney, D. Rubenstein, and S. Raghavan, Eds. Springer Berlin Heidelberg, 2010, vol. 6091, no. 10, pp. 40–52.

1. A. Simonicˇ, “Grupe operatorjev s pozitivnim spektrom,” Master’s thesis, Uni- verza v Ljubljani, FNT, Oddelek za Matematiko, 1990.
2. “Publication quality tables in latex,” March 2008, Accessed on : 10 March 2008. [Online]. Available: <http://nvd.nist.gov/nvd.cfm?cvename=CVE-2008-1368>
3. N. Dunford and J. T. Schwartz, *Linear Operators, Part I: General Theory*. New York: Interscience, 1957, p. 456.

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**Appendix A**

# How to install LATEX

### Windows OS

#### TeXLive package - full version

* 1. Download the TeXLive ISO (2.2GB) from <https://www.tug.org/texlive/>
  2. Download WinCDEmu (if you don’t have a virtual drive) from <http://wincdemu.sysprogs.org/download/>
  3. To install Windows CD Emulator follow the instructions at <http://wincdemu.sysprogs.org/tutorials/install/>
  4. Right click the iso and mount it using the WinCDEmu as shown in <http://wincdemu.sysprogs.org/tutorials/mount/>
  5. Open your virtual drive and run setup.pl or

#### Basic MikTeX - TEX distribution

1. Download Basic-MiKTEX(32bit or 64bit) from <http://miktex.org/download>

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1. Run the installer
2. To add a new package go to Start » All Programs » MikTex » Maintenance (Admin) and choose Package Manager
3. Select or search for packages to install

#### TexStudio - TEX editor

1. Download TexStudio from <http://texstudio.sourceforge.net/#downloads>
2. Run the installer

### Mac OS X

#### MacTeX - TEX distribution

1. Download the file from <https://www.tug.org/mactex/>
2. Extract and double click to run the installer. It does the entire configuration, sit back and relax.

#### TexStudio - TEX editor

1. Download TexStudio from <http://texstudio.sourceforge.net/#downloads>
2. Extract and Start

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### Unix/Linux

#### TeXLive - TEX distribution

##### Getting the distribution:

* 1. TexLive can be downloaded from <http://www.tug.org/texlive/acquire-netinstall.html>.
  2. TexLive is provided by most operating system you can use (rpm,apt-get or yum) to get TexLive distributions

##### Installation

1. Mount the ISO file in the mnt directory

mount -t iso9660 -o ro,loop,noauto /your/texlive####.iso /mnt

1. Install wget on your OS (use rpm, apt-get or yum install)
2. Run the installer script install-tl.

cd /your/download/directory

./install-tl

1. Enter command ‘i’ for installation
2. Post-Installation configuration:

<http://www.tug.org/texlive/doc/texlive-en/texlive-en.html#x1-320003.4.1>

1. Set the path for the directory of TexLive binaries in your .bashrc file

edit $~/.bashrc file and add following lines PATH=/usr/local/texlive/2011/bin/x86\_64-linux:$PATH; export PATH MANPATH=/usr/local/texlive/2011/texmf/doc/man:$MANPATH; export MANPATH INFOPATH=/usr/local/texlive/2011/texmf/doc/info:$INFOPATH; export INFOPATH

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##### Fedora/RedHat/CentOS:

sudo yum install texlive sudo yum install psutils

##### SUSE:

sudo zypper install texlive

##### Debian/Ubuntu:

sudo apt-get install texlive texlive-publishers texlive-latex-extra sudo apt-get install psutils

**Appendix B**

# Installing the CUED class file

LATEX.cls files can be accessed system-wide when they are placed in the <texmf>/tex/latex directory, where <texmf> is the root directory of the user’s TEXinstallation. On sys- tems that have a local texmf tree (<texmflocal>), which may be named “texmf-local”

or “localtexmf”, it may be advisable to install packages in <texmflocal>, rather than

<texmf> as the contents of the former, unlike that of the latter, are preserved after the LATEXsystem is reinstalled and/or upgraded.

It is recommended that the user create a subdirectory <texmf>/tex/latex/CUED

for all CUED related LATEXclass and package files. On some LATEXsystems, the directory look-up tables will need to be refreshed after making additions or deletions to the system files. For TEXLive systems this is accomplished via executing “texhash” as root. MIKTEXusers can run “initexmf -u” to accomplish the same thing.

Users not willing or able to install the files system-wide can install them in their personal directories, but will then have to provide the path (full or relative) in addition to the filename when referring to them in LATEX.

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