An Introduction to LaTeX

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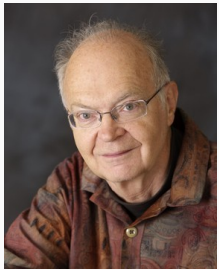
目录

目录

TEX 与 LATEX

- TEX: $\tau\varepsilon\chi$ (/'tɛx/, /'tɛk/)
  - 生成精美图书的排版系统，由高德纳 (Donald E. Knuth) 于开发
  - 发音接近 “泰赫”，” 泰克”，而非 “泰克斯”
  - 最新版本为 TEX 3.14159265，漂亮、美观、稳定、通用，尤其擅长数学公式排版
- LATEX (/'la:tɛx/, /'leɪtɛk/)
  - 后人在 TEX 的基础上的宏包
  - 降低使用门槛极其丰富的宏包、模板
  - 提供扩展功能广泛用于学术界，期刊会议论文模板、大学学位论文模板



和 Word 对比

Microsoft® Word	LaTeX
字处理工具	专业排版软件
容易上手，简单直观	容易上手
所见即所得	所见即所想，所想即所得
高级功能不易掌握	进阶难，但一般用不到
处理长文档需要丰富经验	和短文档处理基本无异
花费大量时间调格式	无需担心格式，专心作者内容
公式排版差强人意	尤其擅长公式排版
二进制格式，兼容性差	文本文件，易读、稳定
付费商业许可	自由免费使用

TEX 排版举例：公式

无编号公式

$$\mathcal{F}(\xi) = \int_{-\infty}^{\infty} f(x) \mathrm{e}^{-\mathrm{j}2\pi\xi x} \mathrm{d}x$$

多行多列公式

$$y = d \qquad z = 1 \tag{1}$$

$$y = cx + d \qquad z = x + 1 \tag{2}$$

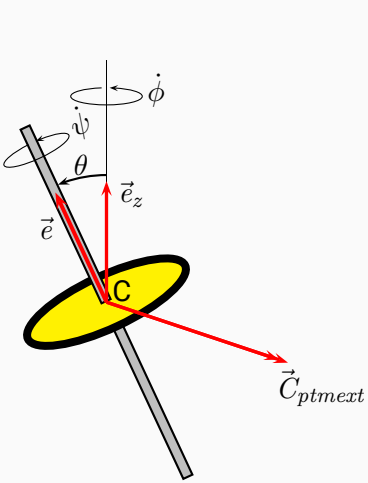
$$y_{12} = bx^2 + cx + d \qquad z = x^2 + x + 1$$

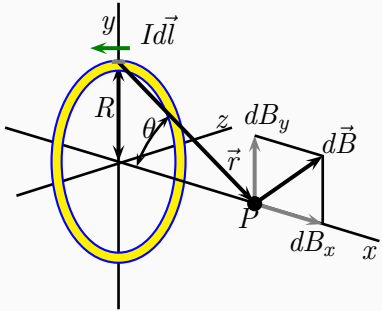
$$y(x) = ax^3 + bx^2 + cx + d \qquad z = x^3 + x^2 + x + 1 \tag{3}$$

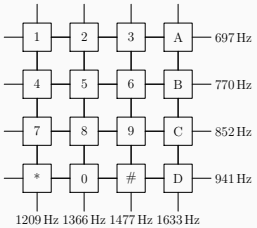
编号多行公式

$$
\begin{aligned}
A = \lim_{n\to\infty} \Delta x \Big(a^2 + \Big(a^2 + 2a\Delta x + (\Delta x)^2 \Big) \\
+ \Big(a^2 + 2\cdot 2a\Delta x + 2^2 (\Delta x)^2 \Big) \\
+ \Big(a^2 + 2\cdot 3a\Delta x + 3^2 (\Delta x)^2 \Big) \\
+ \dots \\
+ \Big(a^2 + 2\cdot (n-1)a\Delta x + (n-1)^2 (\Delta x)^2 \Big) \Big) \\
= \frac{1}{3} \left(b^3 - a^3 \right)
\end{aligned} \tag{4}
$$

TEX 排版举例：图形


$\dot{\phi}$
$\dot{\psi}$
θ
$\vec{e}_z$
$\vec{e}$
C
$\vec{C}_{ptmext}$


y
$Id\vec{l}$
R
θ
z
dB_y
$d\vec{B}$
$\vec{r}$
P
dB_x
x


1
2
3
A
697 Hz
4
5
6
B
770 Hz
7
8
9
C
852 Hz
*
0
#
D
941 Hz
1209 Hz 1366 Hz 1477 Hz 1633 Hz

TEX 排版举例：文档

potential to have context sources or sensors (and sensor networks) in the vicinity of a mobile user sold as services to the mobile user, to support context-aware applications. However, challenges are present in order to "elastically" on-demand form clouds of services and resources efficiently, seamlessly and in a robust manner.

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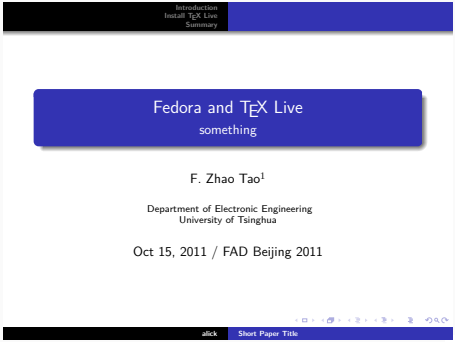
TEX 排版举例：幻灯片


ThuThesis 使用向导 v3.0
薛瑞尼
LittleLeo@newsmth
清华大学 计算机系 高性能所
2007.6.15

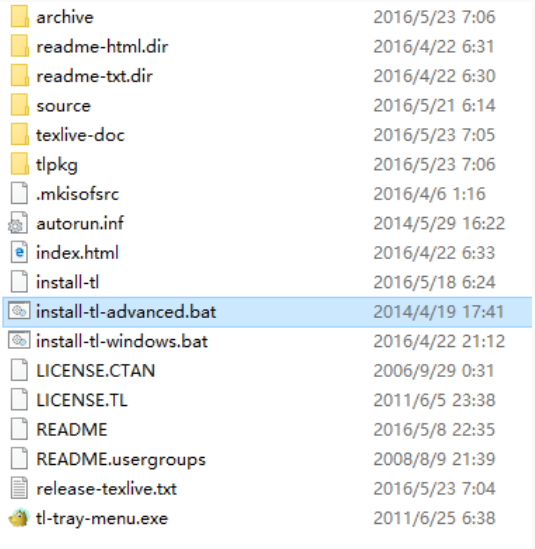

Introduction
Install TeX Live
Summary
Fedora and TeX Live
something
F. Zhao Tao[1]
Department of Electronic Engineering
University of Tsinghua
Oct 15, 2011 / FAD Beijing 2011
alick
Short Paper Title

目录

安装镜像下载

- 为什么选择 TeX Live 发行版?
  - 跨平台:Windows,Linux,Mac OS
  - 即时更新,稳定的开源社区,工具集完整
- 离线安装镜像 (约 3GB 大小)
  - `https://mirrors.tuna.tsinghua.edu.cn/CTAN/systems/texlive/Images/texlive.iso`
  - `https://mirrors.aliyun.com/CTAN/systems/texlive/Images/texlive.iso`
- 注意 !!!
  - 镜像文件的安装使用虚拟光驱,尽量不要解压缩
  - 截图……

镜像的安装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tlpkg 2016/5/23 7:06
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index.html 2016/4/22 6:33
install-tl 2016/5/18 6:24
install-tl-advanced.bat 2014/4/19 17:41
install-tl-windows.bat 2016/4/22 21:12
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LICENSE.TL 2011/6/5 23:38
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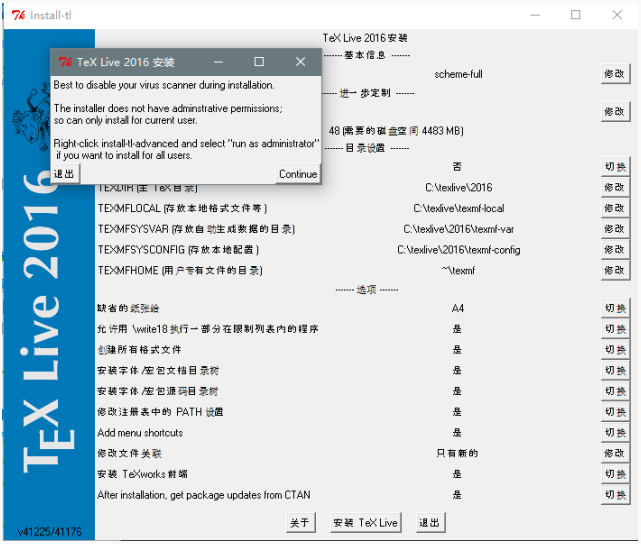

Windows 上安装过程比较慢，尤其是最后的生成索引阶段，请耐心等待

安装后测试

- 编辑 `hello.tex`（Windows 下不要用中文文件名；注意 LaTeX 文档对大小写敏感。）

```
\documentclass{article}
\usepackage{ctex}  % 加入中文支持
\begin{document}
\TeX{}你好！
\end{document}
```

  - Windows 下缺省使用中易字体
  - Linux、Mac OS X 下需要注意字体（参见 ctex 文档）

- 使用 XeLaTeX 引擎编译，得到 PDF 文档

TEX 你好！

目录

常见问题

- 编译不通过 缺少必要宏包，命令拼写错误，括号未配对等
- 表格图片乱跑 LaTeX 自身的浮动定位算法
- 段落间距变大 LaTeX 排版算法
- 参考文献 推荐使用 BibTeX，也可以手写 `\bibitem`

目录

系统学习

- 包太雷《LaTeX Notes(第二版)》(3 小时)
- Stefan Kottwitz《LaTeX Cookbook》
- WikiBooks
  - `https://en.wikibooks.org/wiki/LaTeX`
  - `https://zh.wikibooks.org/wiki/LaTeX`
- 经典文档
  - 仔细阅读《一份不太简短的 LaTeX 2_ε 介绍》(lshort-zh) (1–2 天)
  - 粗略阅读《LaTeX 2_ε 插图指南》(2–3 小时)

扩展阅读

- 一份其实很短的 LaTeX 入门文档 (Liam Huang)
  `http://liam0205.me/2014/09/08/latex-introduction/`
- 网站推荐:
  - http://www.latexstudio.net/
  - http://www.chinatex.org/
- 知乎专栏: http://zhuanlan.zhihu.com/LaTeX
- LaTeX 杂谈 (刘海洋)
- 《LaTeX 入门》(刘海洋)
- LaTeX Tips:
  `https://alick.fedorapeople.org/fudcon-apac-2014/latex-tips.pdf`
- Linux 用户 : `https://github.com/alick/fad-texlive-talk`

利用文档

- 常用文档
  - symbols: 符号大全
  - Mathmode: 数学参考
  - ctex, xeCJK: 中文支持
  - texlive-zh: TeX Live 安装与使用
  - 所用宏包文档
- 工具
  - tlmgr: TeX Live 管理器
  - texdoc: TeX 文档查看器
    例如：`texdoc lshort-zh`
  - `http://texdoc.net/`
  - TeX Studio 和 WinEdt 都支持在帮助里看文档

一点人生的经验

- 不要过于相信网上的中文文档
  - 简单鉴别方法: 排版的好看程度
- 如果你要处理中文
  - 使用 XeLaTeX, 使用 XeLaTeX, 使用 XeLaTeX
  - 忘记 CJK, 忘记 CJK, 忘记 CJK
  - 使用 xeCJK
  - 使用 ctex 宏包 (2.0 以上版本) (跟 CTEX 套装仅仅是名字像)
- 写一点，编译一次，减小排错搜索空间

求助

- BBS
  - bbs.ctex.org
- UK FAQ
- TeX StackExchange
- Google
  - 使用英语搜索

你也可以帮助

- 错误反馈：GitHub Issues
- 改进建议：GitHub Issues
- 出力维护：LaTeX 宏包编写、Git
- 科普、答疑

- 本幻灯片
  - https://www.overleaf.com/read/bdynvrzpqmwq
  - 表示感谢
- 本幻灯片基于：
  - http://github.com/alick/fad-texlive-talk
  - ThuThesis 使用向导 v3.0
- 许可证：CC BY-SA 4.0 Unported

Thank you!