ElegantLaTeX Book Template

MICROROC 设计手册

Victory won't come to us unless we go to it.

Yu Wang

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Email: wyu0725@mail.ustc.edu.cn

Version: 2.10

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第 1 章 ElegantBook 模板的由来

1.1 ElegantNote 的前世今生

ElegantNote LaTeX A

ChinaTeX TikZ

2013

1.

2.

3.

4.

ElegantLaTeX ElegantNote

1.2 ElegantBook 的诞生

ElegantNote ElegantNote ElegantBook ElegantNote⊠ 12290 ⊠ 12290 ElegantNote⊠ 65292 ⊠ 65292

1.3 一张白纸折腾出的一个模板

LaTeX 2_ε [1]⊠ 12289 ⊠ 12289 LaTeX 2_ε [2]*The Not So Short Introduction to LaTeX 2_ε*[3] LaTeX

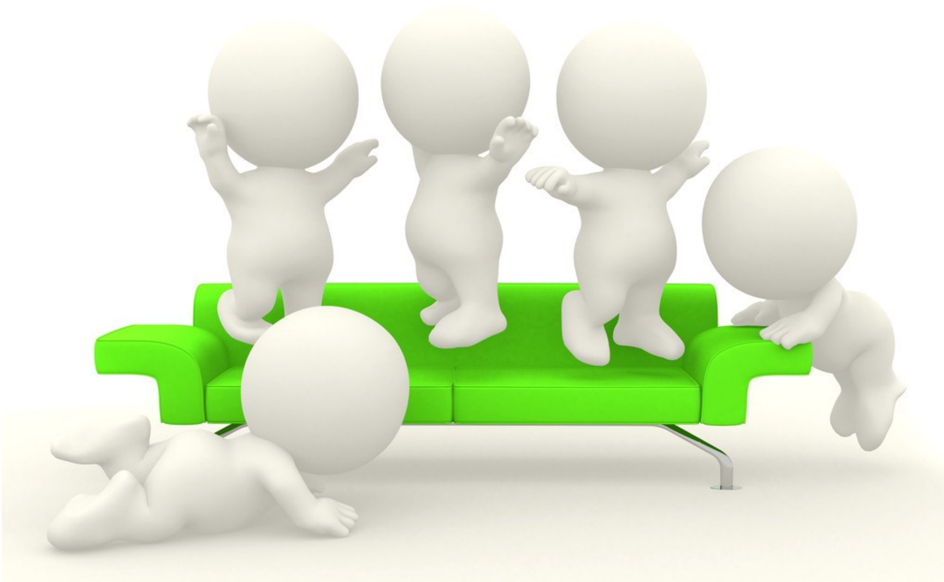

图 **1.1:** Happiness,we have it!

第 2 章 ElegantBook 开服说明

2.1 关于我们

LaTeX elegantlatex2e@gmail.com

ElegantLaTeX http://elegantlatex.tk ElegantSlide Elegant Note A ElegantBook

2.2 关于字体

- Adobe Garamond Pro
- Minion Pro & Myriad Pro & Inconsolata
-
-

Note: 中文正文使用了华文中宋，*Minion Pro* 为英文衬线字体（ ），*Myriad Pro* 为英文非衬线字体（ ），*Inconsolata* 为英文打字机字体（ ）。

并且，如果系统内安装了 *Adobe* 字体，大家可以把模板中使用到的黑体，楷体，宋体等字替换成 *Adobe* 字体，这样可以达到最佳效果。

2.3 文档说明

2.3.1 编译方式

XeLaTeX UTF-8 TeXlive XeLaTeX->BibTeX->XeLaTeX->XeLaTeX

2.3.2 选项设置

3 65288 65288 **必须**

定义颜色值

定义颜色值

定义颜色值

	green	cyan	blue	
main				newthem newlemma newcorol
seco				newdef
thid				newprop

表 2.1: ElegantBook

mathpazo mtpro2 mtpro2
65289 65289
,,, 65307 65307

2.3.3 数学环境简介

1.
    - newthem
    - newdef
    - newprop
2. newproof newproof
3. conclusion
4.
5.

2.3.4 可编辑的字段

第 3 章 ElegantBook 写作示例

3.1 灵魂不随便出卖，代码也不随便瞎写

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

$$
\begin{aligned}
\max(\min) \quad & \mathbb{E} \int_{t_0}^{t_1} f(t,x,u)\, dt \\
\text{s.t.} \quad & dx = g(t,x,u)dt + \sigma(t,x,u)dz \\
& k(0) = k_0 \text{ given}
\end{aligned}
$$

where z is stochastic process or white noise or wiener process.

Definition 3.1 Wiener Process

If z is wiener process, then for any partition $t_0, t_1, t_2, \ldots$ of time interval, the random variables $z(t_1) - z(t_0), z(t_2) - z(t_1), \ldots$ are independently and normally distributed with zero means and variance $t_1 - t_0, t_2 - t_1, \ldots$ ♡

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Example 3.1: E and F be two events such that $\mathbf{P}(E) = \mathbf{P}(F) = 1/2$, and $\mathbf{P}(E \cap F) = 1/3$, let $\mathscr{F} = \sigma(Y)$, X and Y be the indicate function of E and F respectively. How to compute $\mathbb{E}[X \mid \mathscr{F}]$?

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Exercise 3.1: let $S = l^\infty = \{(x_n) \mid \exists\, M \text{ such that } \forall n, |x_n| \leq M, x_n \in \mathbb{R}\}$, $\rho_\infty(x,y) = \sup\limits_{n\geq 1} |x_n - y_n|$, show that (l^∞, ρ_∞) is complete.

Theorem 3.1 勾股定理

勾股定理的数学表达（Expression）为

$$a^2 + b^2 = c^2$$

其中 a, b 为直角三角形的两条直角边长，c 为直角三角形斜边长。

Note: *在本模板中，引理（lemma），推论（corollary）的样式和定理的样式一致，包括颜色，仅仅只有计数器的设置不一样。在这个例稿中，我们将不给出引理推论的例子。*

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Proposition 3.1 最优性原理

如果 u^* 在 $[s, T]$ 上为最优解，则 u^* 在 $[s, T]$ 任意子区间都是最优解，假设区间为 $[t_0, t_1]$ 的最优解为 u^*，则 $u(t_0) = u^*(t_0)$，即初始条件必须还是在 u^* 上。

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Corollary 3.1

假设 $V(\cdot,\cdot)$ 为值函数，则跟据最大值原理，有如下推论

$$V(k,z) = \max\left\{u\big(zf(k)-y\big) + \beta\mathbb{E}V(y,z')\right\}$$

Proof: $y^* = \alpha\beta z k^\alpha$⊠65292⊠65292 $V(k,z) = \alpha/1-\alpha\beta\ln k_0 + 1/1-\alpha\beta\ln z_0 + \Delta$⊠12290⊠12290

$$\begin{aligned}
&= \left\{u\big(zf(k)-y\big) + \beta\mathbb{E}V(y,z')\right\} \\
&= \ln(zk^\alpha - \alpha\beta zk^\alpha) + \beta\mathbb{E}\Big[\frac{\alpha}{1-\alpha\beta}\ln y + \frac{1}{1-\alpha\beta}\ln z' + \Delta\Big] \\
&= \ln(1-\alpha\beta)zk^\alpha + \beta\Big\{\mathbb{E}\big[\frac{\alpha}{1-\alpha\beta}\ln\alpha\beta zk^\alpha\big] + \frac{1}{1-\alpha\beta}\mathbb{E}[\ln z'] + \Delta\Big\}
\end{aligned}$$

$\mathbb{E}[\ln z'] = 0$

$$\begin{aligned}
&= \ln(1-\alpha\beta) + \ln z + \alpha\ln k + \frac{\alpha\beta}{1-\alpha\beta}\big[\ln\alpha\beta + \ln z + \alpha\ln k\big] + \frac{\beta}{1-\alpha\beta}\mu + \beta\Delta \\
&= \frac{\alpha}{1-\alpha\beta}\ln k + \frac{1}{1-\alpha\beta}\ln z + \Delta
\end{aligned}$$

$=$ □

Properties: Properties of Cauchy Sequence

1. $\{x_k\}$ is cauchy sequence then $\{x_k^i\}$ is cauchy sequence.
2. $x_k \in \mathbb{R}^n$, $\rho(x,y)$ is Euclidean, then cauchy is equivalent to convergent, $(\mathbb{R}^n,\rho)$ metric space is complete.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

✂ **Application:** This is one example of the custom environment, the key word is given by the option of custom environment.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Definition 3.2 Contraction mapping

(S,ρ) is the metric space, $T:S\to S$, If there exists $\alpha\in(0,1)$ such that for any x and $y\in S$, the distance

$$\rho(Tx,Ty)\leq\alpha\rho(x,y) \tag{3.1}$$

Then T is a contraction mapping.

❀ ***Remarks:***

1. *$T:S\to S$, where S is a metric space, if for any $x,y\in S$, $\rho(Tx,Ty)<\rho(x,y)$ is not contraction mapping.*
2. *Contraction mapping is continuous map.*

Conclusions:

参考文献

[1] T. LaTeX. . Project, “LaTeX 2$_\varepsilon$ for class and package writers,” 1999.

[2] $_{\mathrm{A}}{}^{\varepsilon}$

$_{\mathrm{A}}{}^{\varepsilon}$