

湖南大学

HUNAN UNIVERSITY

硅基生命护理 课程实验报告

硅基生命基础结构实验



学院 赛博生物工程学院

专业 硅基生物学

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学号 114514

2077 年 1 月 1 日

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1 一级标题

整理了在实验报告可能用到的任何元素，包括图表(及其编号)，树状图，代码块，数学公式，高亮，样式内容块等。

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测试中文:

通过这次实验，我深刻体会到了同态加密技术的强大和实用性，特别是在保护数据隐私的同时执行复杂计算的能力。使用 *Microsoft SEAL* 库进行加密计算不仅加深了我对同态加密原理的理解，也提升了我的编程技能和解决实际问题的能力。

分点:

1. *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*
2. *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*
 - *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*
 - *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*
 - test¹

terms:

Fact If a term list has a lot of text, and maybe other inline content.

Tip To make it wide, simply insert a blank line between the items.

测试文本

测试文本

测试文本

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测试文本

[点击跳转链接](#)

这是一个被强调的内容

1.1 二级标题

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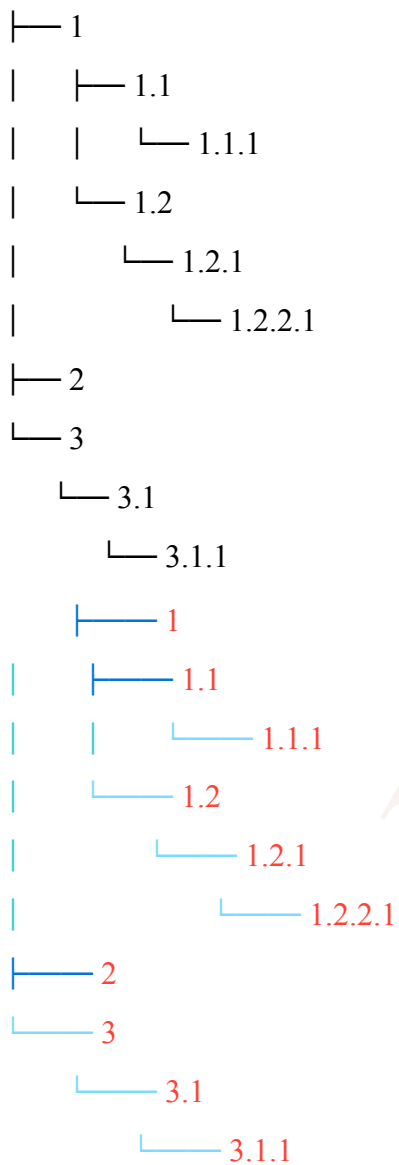
¹测试脚注



图 1.1.1: 湖南大学校徽

1.2 测试 treet

树状图:



1.3 测试 tblr

Country	Population (millions)	Area (1000 sq. mi.)	Pop. Density (per sq. mi.)
China	1313	9596	136.9
India	1095	3287	333.2

Country	Population (millions)	Area (1000 sq. mi.)	Pop. Density (per sq. mi.)
United States	298	9631	31.0
Indonesia	245	1919	127.9
Brazil	188	8511	22.1
Pakistan	165	803	206.2
Bangladesh	147	144	1023.4 ^a
Russia	142	17075	8.4
Nigeria	131	923	142.7

^aHighest value

1.4 测试 mannot

Inverse temperature

Boltzmann factor

Energy

$$p_i = \frac{\exp(-\beta E_i)}{\sum_j \exp(-\beta E_j)}$$

Probability of state i

Partition function

(1.1)

1.5 测试 badgery

Gray badge

Red badge

Yellow badge

Green badge

Blue badge

Purple badge

Click me

File

New File...

Menu

Sub-menu

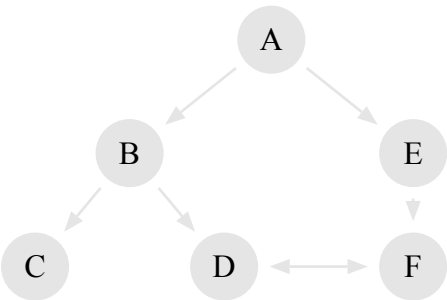
Sub-sub menu

Action

1.6 测试 iconic-salmon-svg

This project was created by  [BiOT1N](#). You can also find me on  [GitLab](#).

1.7 测试 cetz



1.8 测试 gentle

i Info

This is the info clue ...

🔥 这是一个测试标题

Check out this cool package

? Question

This is the info clue ...

“This is the info clue ...”

Example

This is the info clue ...

📄 Abstract

This is the info clue ...

☰ Task 1

This is the info clue ...

✖ Error

This is the info clue ...

⚠ Warning

This is the info clue ...

✅ Success

This is the info clue ...

🧩 Conclusion

This is the info clue ...

! Memorize

This is the info clue ...

We should run more tests!

1.9 测试 thmbox

Theorem 0.1

This is created using `#theorem[...]`.

Proposition 0.2

This is created using `#proposition[...]`.

Lemma 0.3

This is created using `#lemma[...]`.

Corollary 0.4

This is created using `#corollary[...]`.

Definition 0.5

This is created using `#definition[...]`.

Example

This is created using `#example[...]`.

Remark

This is created using `#remark[...]`.

Exercise 0.6

This is created using `#exercise[...]`.

Algorithm 0.7

This is created using `#algorithm[...]`.

Claim

This is created using `#claim[...]`.

Axiom 0.8

This is created using `#axiom[...]`.

1.10 测试 note-me

Note

Highlights information that users should take into account, even when skimming.

Tip

Optional information to help a user be more successful.

Important

Crucial information necessary for users to succeed.

Warning

Critical content demanding immediate user attention due to potential risks.

Caution

Negative potential consequences of an action.

TODO

Fix note-me package.

1.11 测试 colorbox

Lorem ipsum dolor sit amet.

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1.12 测试 showybox

①

Red-ish showybox with separated sections!

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Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor.

②

Clairaut's theorem

Let $f : A \rightarrow \mathbb{R}$ with $A \subset \mathbb{R}^n$ an open set such that its cross derivatives of any order exist and are continuous in A . Then for any point $(a_1, a_2, \dots, a_n) \in A$ it is true that

$$\frac{\partial^n f}{\partial x_i \dots \partial x_j}(a_1, a_2, \dots, a_n) = \frac{\partial^n f}{\partial x_j \dots \partial x_i}(a_1, a_2, \dots, a_n) \quad (1.2)$$

This will be useful every time you want to interchange partial derivatives in the future.

③

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Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aequaleamus animo, cum corpore dolemus, fieri.	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim aequaleamus animo, cum corpore dolemus, fieri.

④

Divergence theorem

Suppose V is a subset of \mathbb{R}^n which is compact and has a piecewise smooth boundary S (also indicated with $\partial V = S$). If \mathbf{F} is a continuously differentiable vector field defined on a neighborhood of V , then:

$$\iiint_V (\nabla \cdot \mathbf{F}) \, dV = \iint_S (\mathbf{F} \cdot \hat{\mathbf{n}}) \, dS \quad (1.3)$$

In the case of $n = 3$, V represents a volume in three-dimensional space, and $\partial V = S$ its surface

⑤

Parent container

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

Child 1


Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

Child 2

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

1.13 测试 ourchat

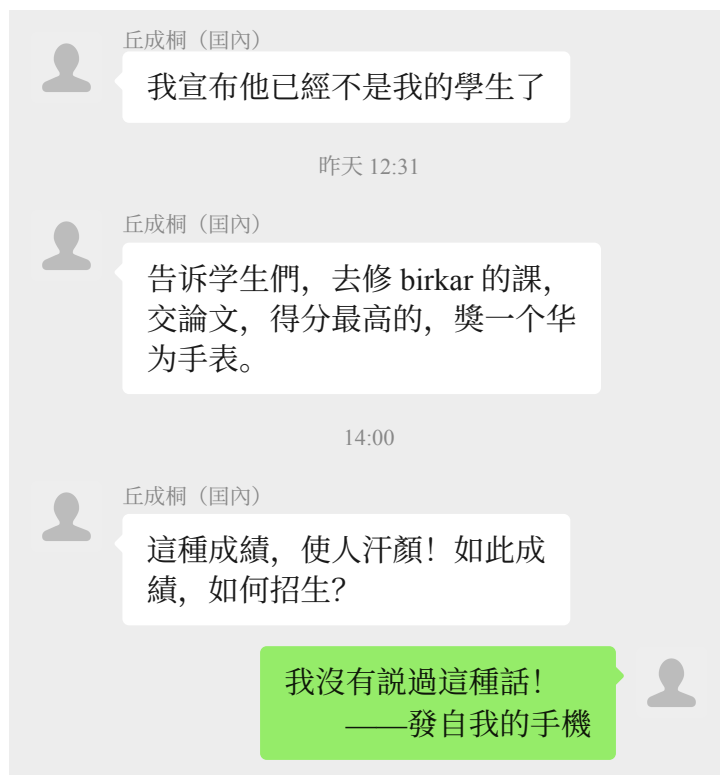
11月3日 中午12:05



丘成桐 (国内)

已經到了無恥的地步。

11月9日 凌晨00:06



1.14 测试 syntree

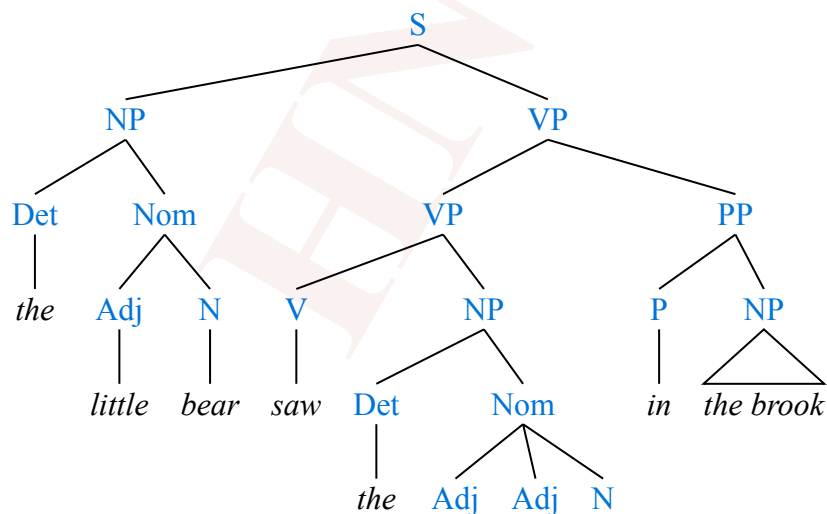


图 1.14.2: Example of a syntax tree.

1.15 测试 codly

```
1 pub fn main() {
2     println!("Hello, world!");
3 }
```

Rust

```
1 void MergeSort(int arr[], int left, int right) {
2     if(left >= right) return;
```

C++

```
3   int mid = (left + right) >> 1;
4   MergeSort(arr, left, mid);
5   MergeSort(arr, mid + 1, right);
6   int i = left, j = mid + 1, k = 0, temp[right - left + 1];
7   while(i <= mid && j <= right) {
8       if(arr[i] <= arr[j]) temp[k++] = arr[i++];
9       else temp[k++] = arr[j++];
10  }
11  while(i <= mid) temp[k++] = arr[i++];
12  while(j <= right) temp[k++] = arr[j++];
13  for(int i = 0; i < k; i++) arr[left + i] = temp[i];
14 }
```

1.16 测试 cheq

- ☐ Mercury
- ☒ Mars
- ☐ Jupiter
- ☒ Sun

1.17 测试 pyrunner

```
("john.doe@example.com", "jane.doe@example.net") 6
```

1.18 测试 pinit

A simple highlighted text.

1.19 测试 neoplot

It is simple.

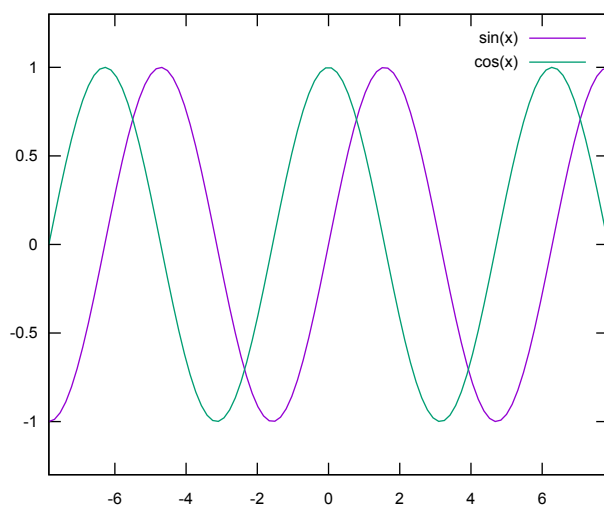
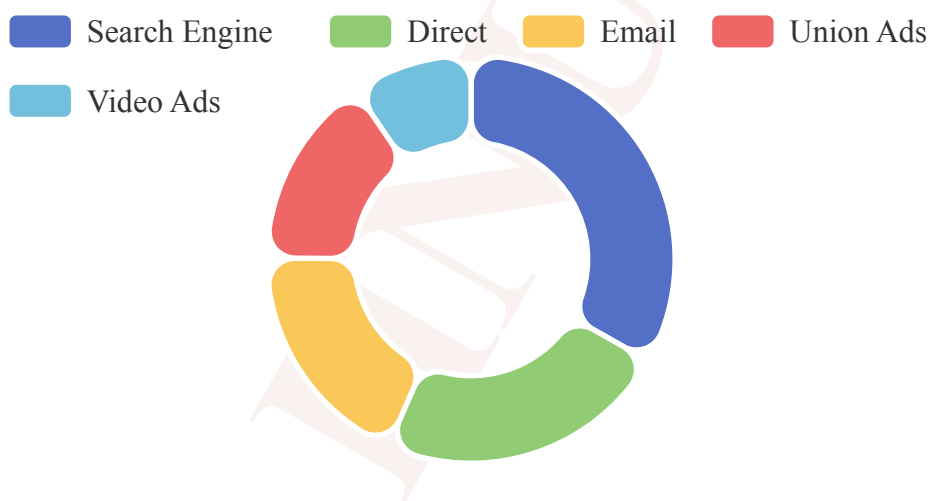


图 1.19.3: 测试图片

1.20 测试 echarm



1.21 测试 physica

$$A^T, \nabla \times \boldsymbol{E} = -\frac{\partial \boldsymbol{B}}{\partial t}, \quad \Lambda^{+\mu}{}_{\nu} = \begin{pmatrix} 1 & \\ & \mathbb{R} \end{pmatrix}, \quad f(x,y) \, dx \, dy, \quad d^3 \boldsymbol{x} \, dy, \quad \Delta^2 x \wedge \Delta^2 y, \quad \frac{D\varphi}{Dt} = \frac{\partial \varphi}{\partial t} + \boldsymbol{u} \nabla \varphi$$

$$H(f) = \begin{bmatrix} \frac{\partial^2 f}{\partial x^2} & \frac{\partial^2 f}{\partial x \partial y} \\ \frac{\partial^2 f}{\partial y \partial x} & \frac{\partial^2 f}{\partial y^2} \end{bmatrix}, \quad \boldsymbol{v}^a = \sum_{i=1}^n \alpha_i \hat{\boldsymbol{u}}^i, \quad \left\{ (x,y) \left| \frac{\partial^{2,1+1} f}{\partial x^{2,1} \partial y} + \frac{\partial^{2+1} f}{\partial x^{1,2} \partial y} < \varepsilon \right. \right\} \quad (1.4)$$

$$-\frac{1}{c^2} \frac{\partial^2}{\partial t^2} \psi + \nabla^2 \psi = \frac{m^2 c^2}{\hbar^2} \psi, \quad |n^{(1)}\rangle = \sum_{k \notin D} \frac{\langle k^{(0)} | V | n^{(0)} \rangle}{E_n^{(0)} - E_k^{(0)}} |k^{(0)}\rangle, \quad \int_V dV \left(\frac{\partial \mathcal{L}}{\partial \varphi} - \partial_\mu \left(\frac{\partial \mathcal{L}}{\partial (\partial_\mu \varphi)} \right) \right) = 0$$

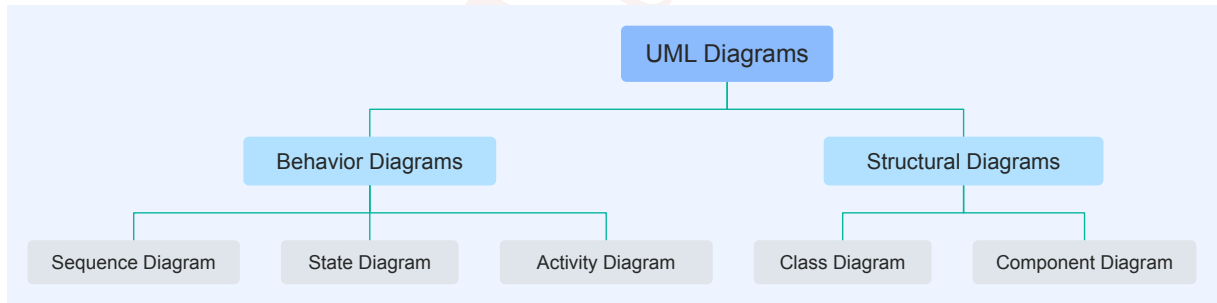
$$d^2s=-\left(1-\frac{2GM}{r}\right)d^2t+\left(1-\frac{2GM}{r}\right)^{-1}d^2r+r^2\,d^2\Omega$$

$$\begin{array}{l} \text{clk:} \quad \text{[Timing Diagram: A square wave signal]} \\ \text{bus:} \quad \text{[Timing Diagram: A bus signal with shaded regions and X marks]} \end{array} \quad (1.5)$$

1.22 测试 mitex

$$f(x)=\int_{-\infty}^{\infty}\hat{f}(\xi)\,e^{2\pi i\xi x}\,d\xi \quad (1.6)$$

1.23 测试 pintora



1.24 测试 unify

$$\left(-1.328\,65\pm0.502\,73\right)\cdot10^{-6} \quad (1.7)$$

$$\left(1.3^{+1.2}_{-0.3}\right)\cdot10^3\,\,\mathrm{erg}\,\,\mathrm{cm}^{-2}\,\,\mathrm{s}^{-1} \quad (1.8)$$

$$1,123'8\cdot10^{-2}-3,086'8\cdot10^5 \quad (1.9)$$

$$\left(1\,\,\mathrm{to}\,\,2\right)\cdot10^3\,\frac{\mathrm{m}}{\mathrm{s}^2} \quad (1.10)$$

1.25 测试 algo

```

Fib (n):
1  if  $n < 0$ :
2  |   return null
3  if  $n = 0$  or  $n = 1$ :
4  |   return  $n$ 
5
6  let  $x \leftarrow 0$ 
7  let  $y \leftarrow 1$ 
8  for  $i \leftarrow 2$  to  $n - 1$ : ▷ so dynamic!
9  |   let  $z \leftarrow x + y$ 
10 |    $x \leftarrow y$ 
11 |    $y \leftarrow z$ 
12
13 return  $x + y$ 

```

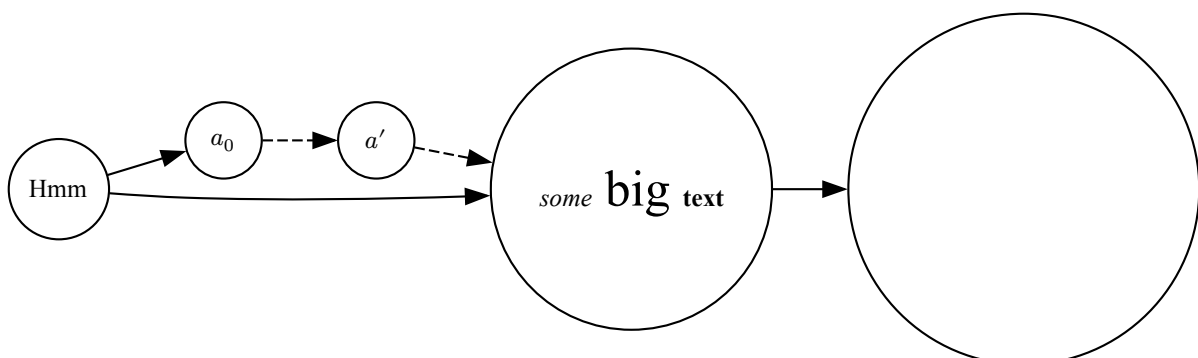
Floyd-Warshall(V, E, w):

```

1  Let  $\text{dist}[u, v] \leftarrow \infty$  for  $u, v$  in  $V$ 
2  For  $(u, v)$  in  $E$ :
3  |    $\text{dist}[u, v] \leftarrow w(u, v)$                                 // edge weights
4  For  $v$  in  $V$ :
5  |    $\text{dist}[v, v] \leftarrow 0$                                     // base case
6
7  For  $k \leftarrow 1$  to  $|V|$ :
8  |   For  $i \leftarrow 1$  to  $|V|$ :
9  |   |   For  $j \leftarrow 1$  to  $|V|$ :
10 |   |   // if new path is shorter, reduce distance
11 |   |   If  $\text{dist}[i, j] > \text{dist}[i, k] + \text{dist}[k, j]$ :
12 |   |   |    $\text{dist}[i, j] \leftarrow \text{dist}[i, k] + \text{dist}[k, j]$ 
13
14 Return  $\text{dist}$ 

```

1.26 测试 diagram



1.27 测试 xarrow

$$\begin{array}{ccc}
 & \mathbb{Q}, 1+1^4 & \\
 a & \longleftarrow & b \\
 & & \\
 c & \overset{\text{very long boi}}{\rightsquigarrow} & d \\
 & & \\
 & c & \\
 \hline
 & \text{NP} \sum^* & \\
 a & \twoheadrightarrow & b \times 4
 \end{array} \tag{1.12}$$

测试参考文献:

文献 1 的内容[1]

文献 2 的内容[2]

参考文献

- [1] R. Impagliazzo, R. Paturi, and F. Zane, “Which problems have strongly exponential complexity?,” *Journal of Computer and System Sciences*, vol. 63, no. 4, pp. 512–530, 2001.
- [2] S. Burckhardt *et al.*, “It's Alive! Continuous Feedback in UI Programming,” *SIGPLAN Not.*, vol. 48, no. 6, pp. 95–104, Jun. 2013, doi: [10.1145/2499370.2462170](https://doi.org/10.1145/2499370.2462170).