

Zhejiang University / University of Illinois Urbana-Champaign Institute

Senior Design Individual Report

AN AWESOME PROJECT MADE BY AN AMAZING STUDENT

By

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Individual Report for Senior Design, Spring 2023

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Abstract

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Keywords Keyword 1, keyword 2, keyword 3

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1 Introduction

1.1 Problem statement

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1.2 Importance

$$f(x) = \sum_{n=0}^{\infty} \frac{1}{n!} f^{(n)}(x_0) (x - x_0)^n, x \in U(x_0) \quad (1.1)$$

$$\begin{aligned} e^{ix} &= 1 + ix + \frac{1}{2!} (ix)^2 + \frac{1}{3!} (ix)^3 + \cdots \frac{1}{n!} (ix)^n + \cdots \\ &= 1 + ix - \frac{1}{2!} x^2 - i \frac{1}{3!} x^3 + \frac{1}{4!} x^4 + i \frac{1}{5!} x^5 - \cdots \\ &= \left(1 - \frac{1}{2!} x^2 + \frac{1}{4!} x^4 - \cdots \right) + i \left(x - \frac{1}{3!} x^3 + \frac{1}{5!} x^5 - \cdots \right) \\ &= \cos x + i \sin x \end{aligned} \quad (1.2)$$

1.3 Literature Review

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.[1], [3], [4].

```

1 #include<stdio.h>
2 void fuzzy(int x){
3     return x;
4 }
5 int main(){
6     int a = 0, b, c;
7     scanf("%d", &b);
8     c = b;

```

```
9      if (a == b)
10         a = fuzzy(c);
11      else
12         b = fuzzy(a);
13      printf("%d_ %d\n", a, fuzzy(c));
14      return 0;
15 }
```

2 Methodology

Test the ability to print some units, say (in texts), $10 \times 10^5 \mu\text{m} \cdot \Omega \cdot ^\circ$.

It also applies to equations,

$$R_t = 10 \times 10^5 \mu\text{m} \cdot \Omega \cdot ^\circ \tag{2.1}$$

3 Results

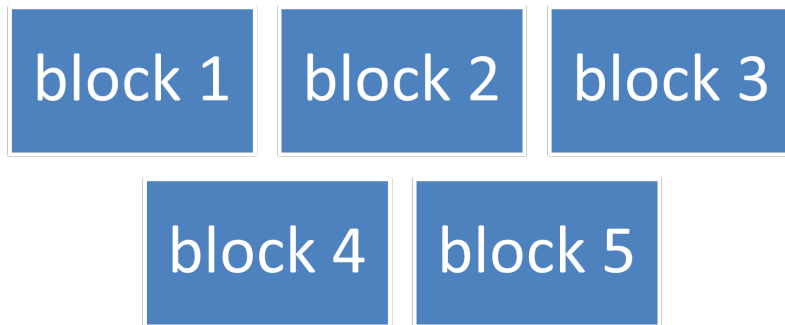


Figure 3.1 An example figure.

4 Discussion

5 Conclusion

References

- [1] Y. Li and J. Fang, “测量半导体中少子漂移迁移率和扩散长度的新方法 [New Method of Determining Excess Carrier Bipolar Mobility],” 半导体学报 [*Chinese Journals of Semiconductors*], vol. 20, no. 12, pp. 1129–1131, Dec. 1999. [Online]. Available: <http://www.jos.ac.cn/fileBDTXB/oldPDF/2005092734449173.pdf>.
- [2] J. R. Haynes and W. Shockley, “The Mobility and Life of Injected Holes and Electrons in Germanium,” *Physical Review*, vol. 81, no. 5, pp. 835–843, Mar. 1, 1951. doi: 10.1103/PhysRev.81.835.
- [3] J. A. Prufrock, *Lasers and Their Applications in Surface Science and Technology*, 2nd ed. New York, NY: McGraw-Hill, 2009.
- [4] J. R. Haynes and W. Shockley, “Investigation of Hole Injection in Transistor Action,” *Physical Review*, vol. 75, no. 4, pp. 691–691, Feb. 15, 1949. doi: 10.1103/PhysRev.75.691.

A Example

An example piece of code:

```
1  # mp4.py
2  # -----
3  # Licensing Information: You are free to use or extend this projects for
4  # educational purposes provided that (1) you do not distribute or publish
5  # solutions, (2) you retain this notice, and (3) you provide clear
6  # attribution to the University of Illinois at Urbana-Champaign
7  #
8  # Created Fall 2018: Margaret Fleck, Renxuan Wang, Tiantian Fang, Edward
   # Huang (adapted from a U. Penn assignment)
9  # Modified Spring 2020: Jialu Li, Guannan Guo, and Kiran Ramnath
10 # Modified Fall 2020: Amnon Attali, Jatin Arora
11 # Modified Spring 2021 by Kiran Ramnath
12 """
13 Part 1: Simple baseline that only uses word statistics to predict tags
14 """
15
16
17 def baseline(train, test):
18     '''
19     input:  training data (list of sentences, with tags on the words)
20            test data (list of sentences, no tags on the words)
21     output: list of sentences, each sentence is a list of (word,tag) pairs.
22            E.g., [[(word1, tag1), (word2, tag2)], [(word3, tag3), (word4,
23            tag4)]]
24     '''
25     tags_dict = {}
26     words_dict = {}
27     for sentence in train:
28         for words in sentence:
29             word = words[0]
30             tag = words[1]
31             if word in words_dict:
32                 if tag in words_dict[word]:
33                     words_dict[word][tag] += 1
34                 else:
35                     words_dict[word][tag] = 1
36             else:
37                 words_dict[word] = {tag: 1}
38             if tag in tags_dict:
39                 tags_dict[tag] += 1
40             else:
41                 tags_dict[tag] = 1
```

```
42     return_list = []
43     for sentence in test:
44         temp = []
45         for word in sentence:
46             if word in words_dict:
47                 temp.append((word, max(words_dict[word], key=words_dict[
word].get)))
48             else:
49                 temp.append((word, max(tags_dict, key=tags_dict.get)))
50         return_list.append(temp)
51
52     return return_list
```

A.1 Some Test Data

A.2 Derivation of Square Law

Acknowledgement

Thank you thank you!