



♥♥♥♥♥

PROUD TO BE GIRLSWHOCODE

杨撒博雅

2017.4.16

个人信息



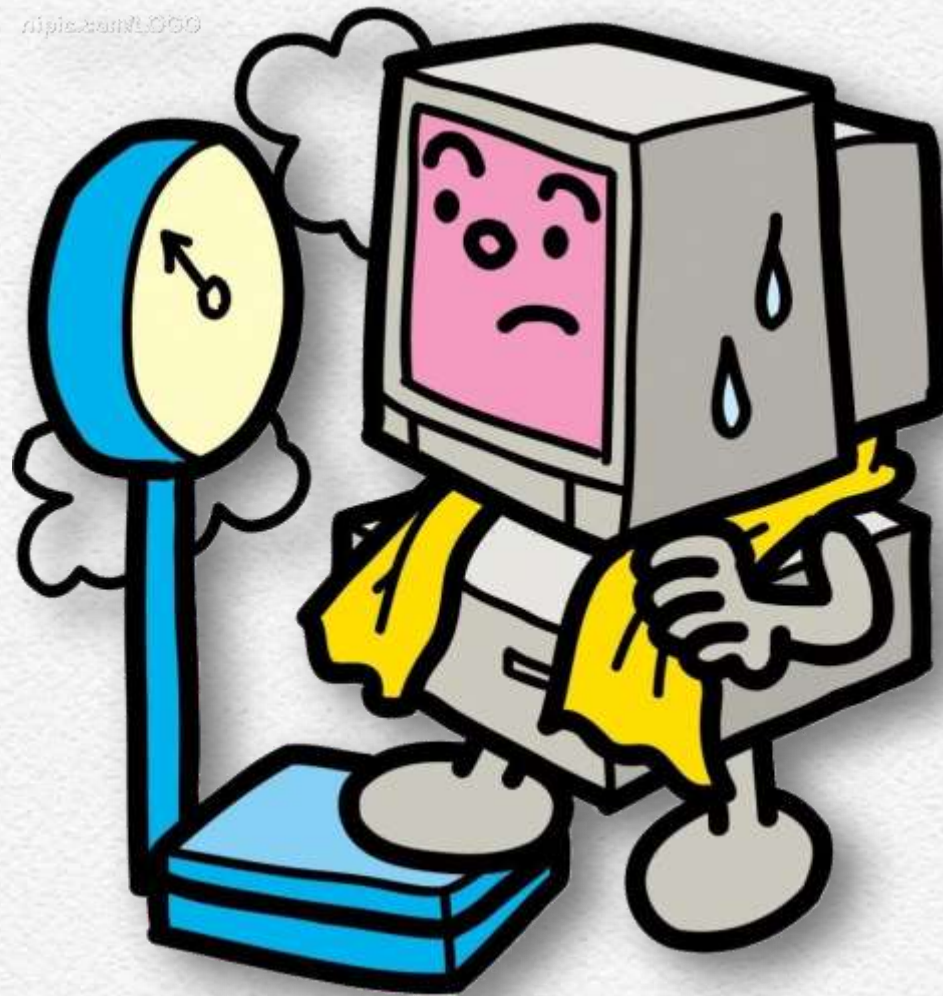
- 2015.03- GirlsWhoCode微信公众号创始人
- 2014.09-2017.06 北京大学计算机科学技术研究所2014级硕士生
(研究方向：图像风格化重建，导师：刘家瑛)
- 2010.09-2014.06 北京大学信息科学技术学院
计算机科学技术系2010级本科生



接触

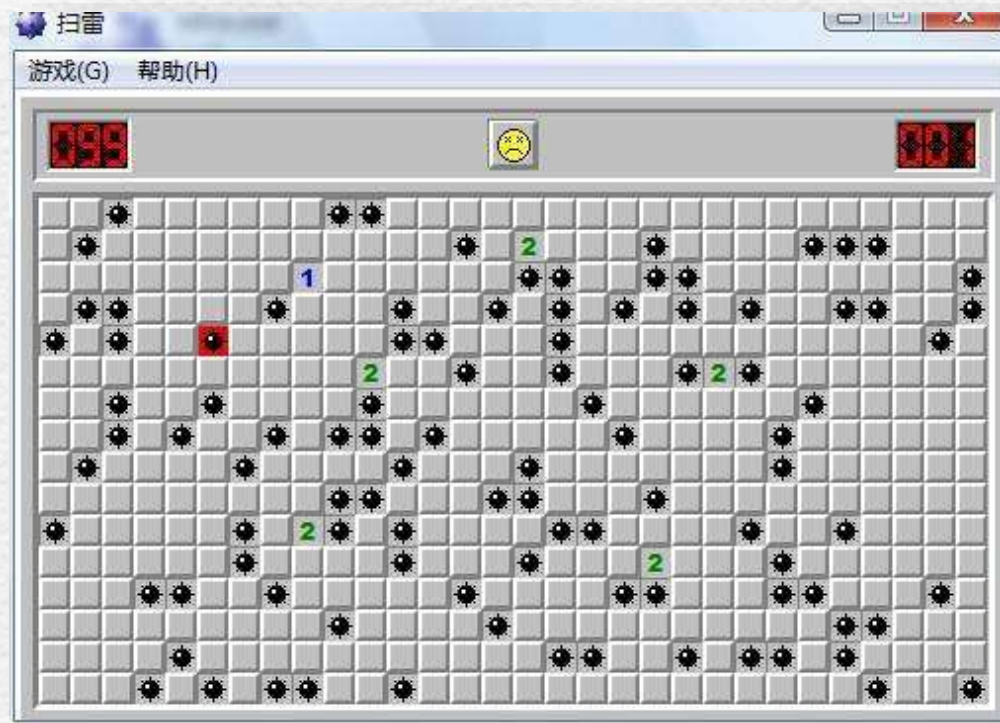
1997

ripizhanLOGO



接触

1997



了解

2000



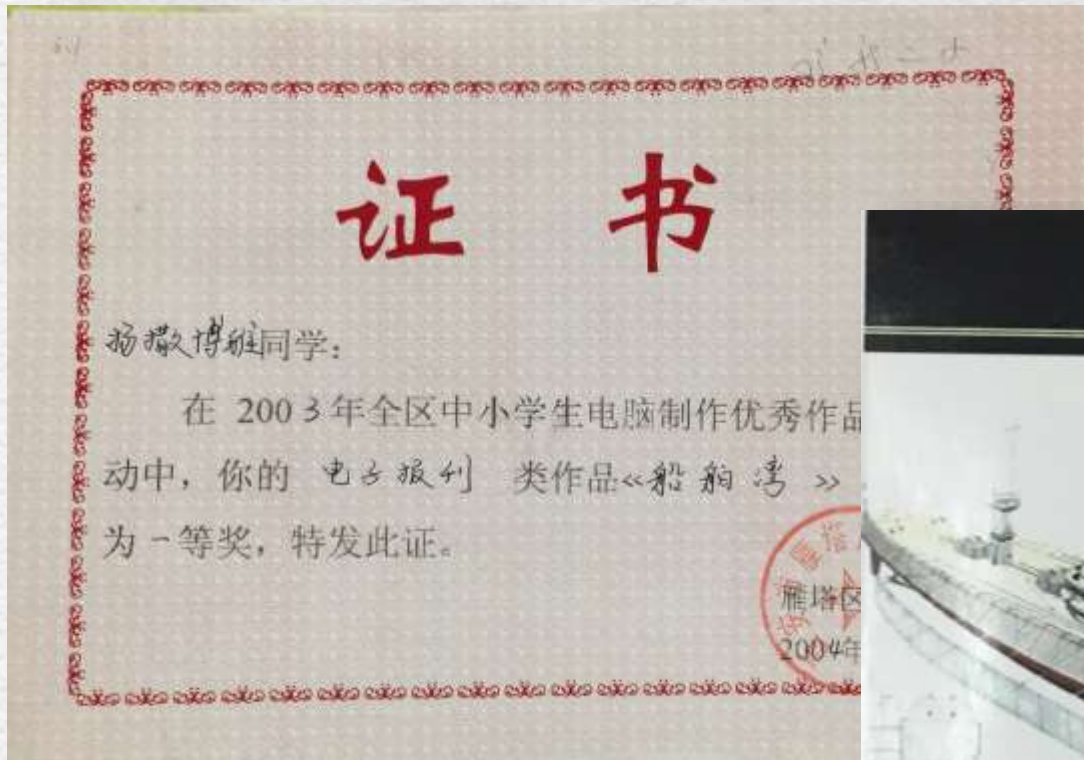
使用

2003



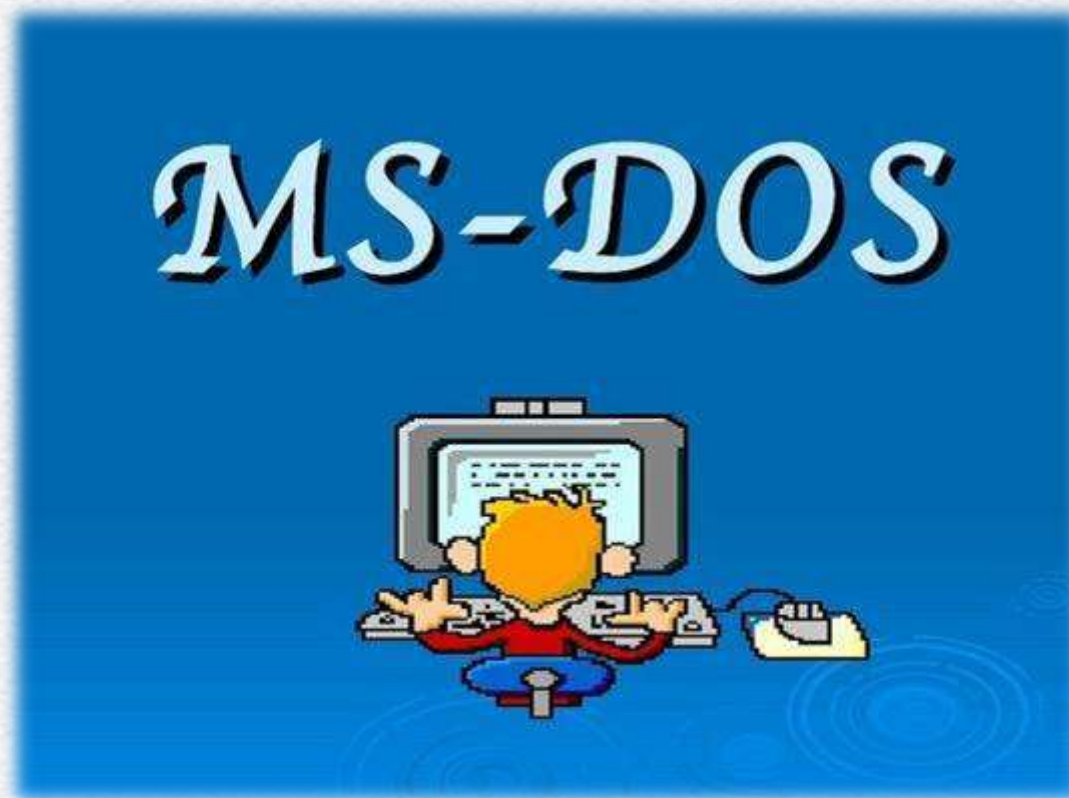
得奖

2003



命令行

2004



社交网络



2007



选择



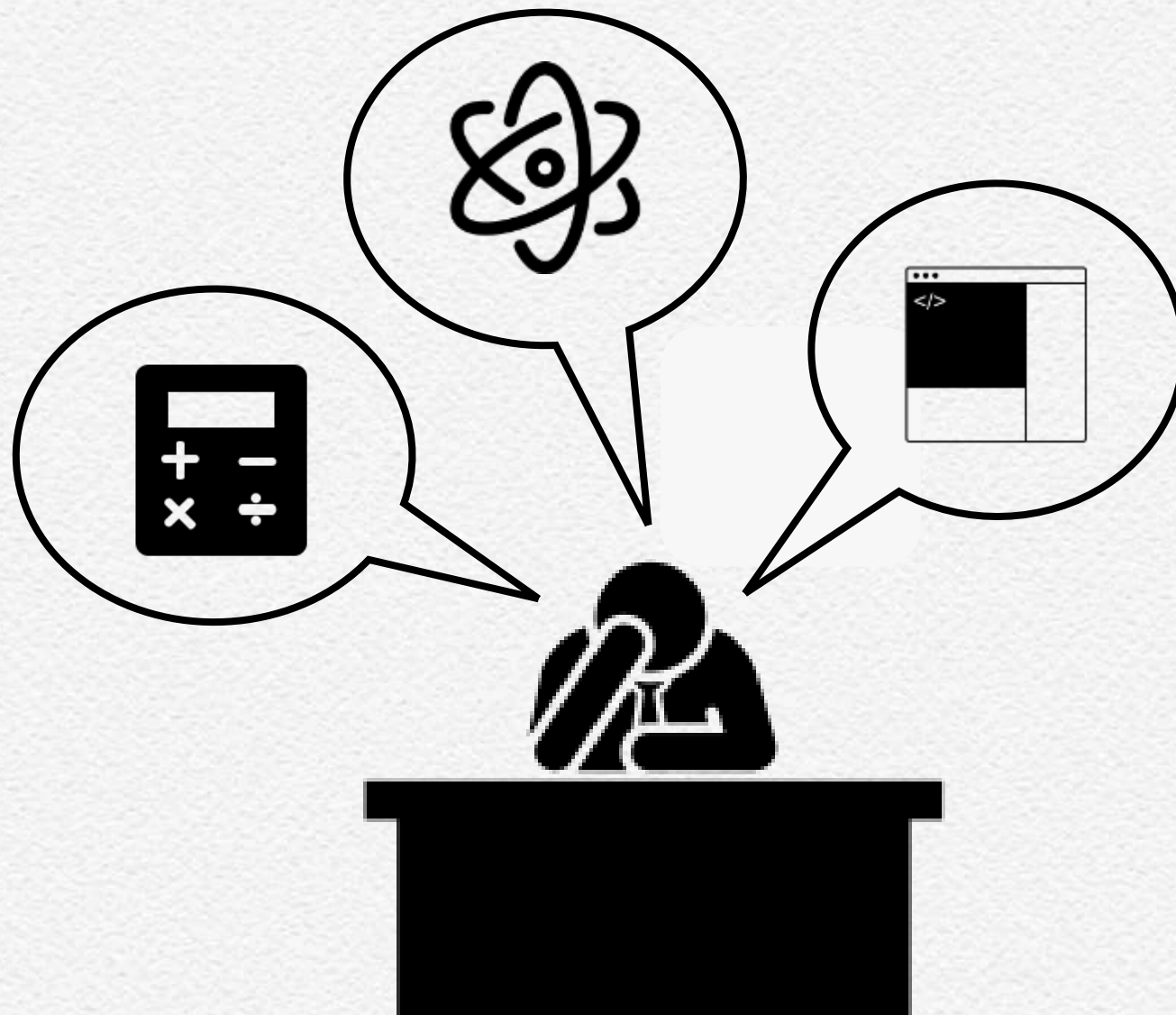
2010

选择

2010



困难



2010

HELLO WORLD

```
#include <iostream>

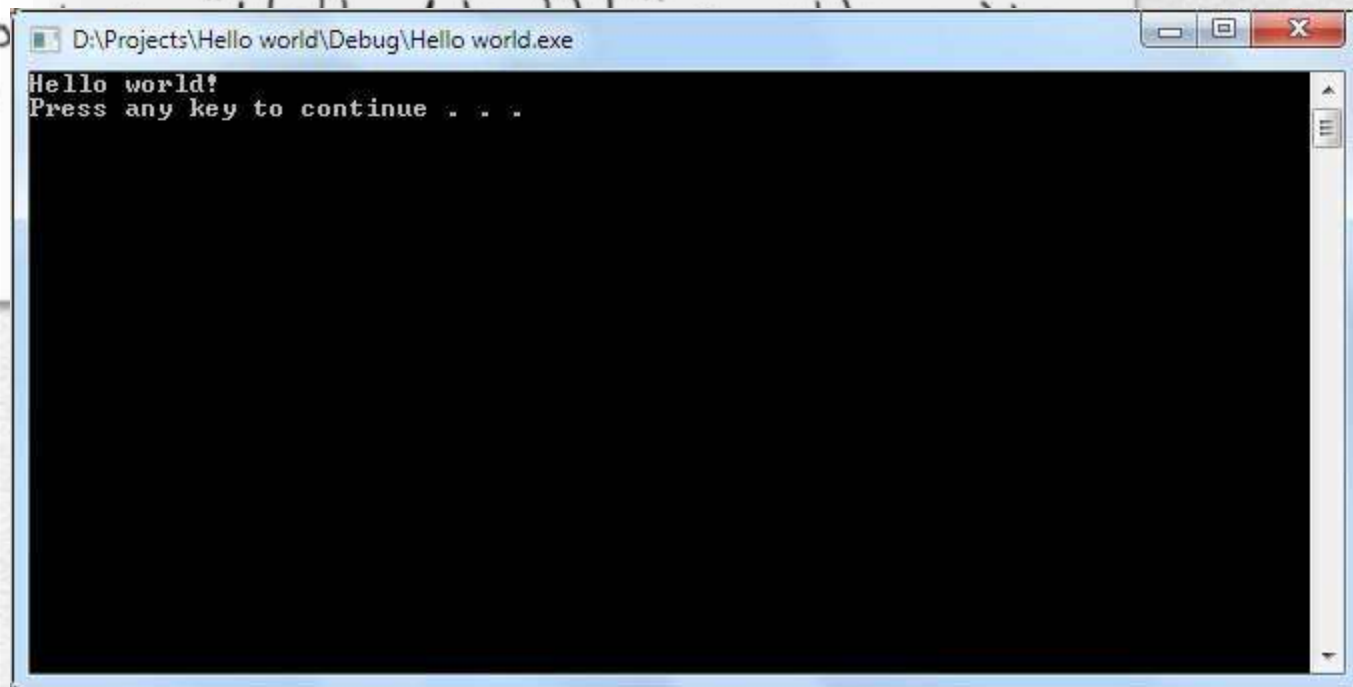
int main(int argc, char** argv)
{
    std::cout << "Hello World!" << std::endl;
    return 0;
}
```

2011

HELLO WORLD

```
#include <iostream>

int main(int argc, char** argv)
{
    std::cout << "Hello world!" << endl;
    return 0;
}
```

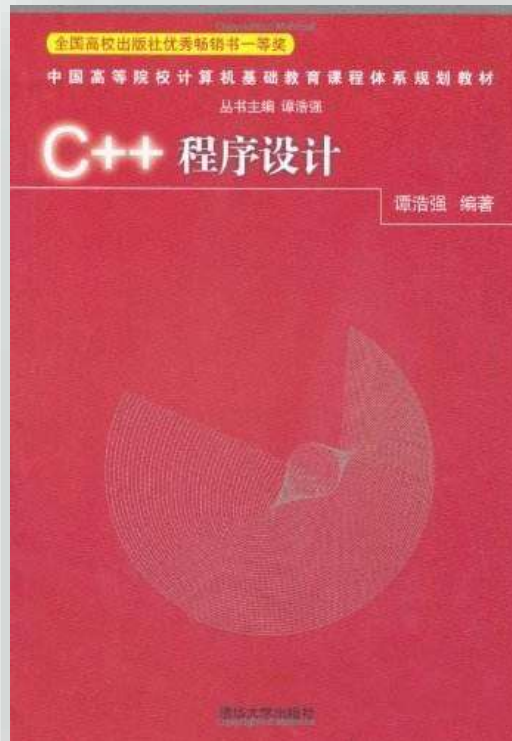


The screenshot shows a Windows command prompt window titled "D:\Projects\Hello world\Debug\Hello world.exe". The window displays the output of the program: "Hello world!" followed by "Press any key to continue . . .". The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

2011

HELLO WORLD I'M A CODER

Microsoft
**Visual
Studio**



2011



CODING



百练 / 2015计算概论实验班期末上机考试 已经结束

题目 排名 状态 统计 提问

比赛已经结束

2015-12-25 15:00:00

开始时间

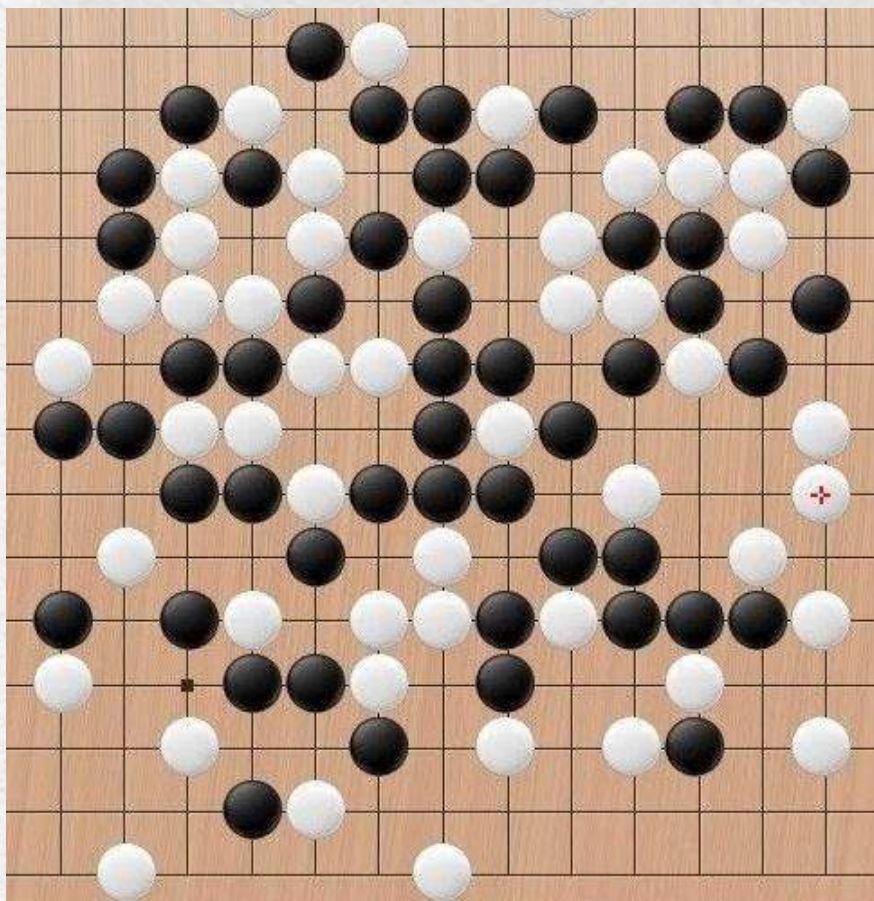
| 题目ID | 标题 | 通过率 | 通过人数 | 尝试人数 |
|------|-------------------|------|------|------|
| A | 数组去重排序 | 100% | 21 | 21 |
| B | 字符串移位包含问题 | 100% | 21 | 21 |
| C | LETTERS | 100% | 21 | 21 |
| D | Aggressive cows | 90% | 19 | 21 |
| E | Cow Exhibition | 63% | 12 | 19 |
| F | TOYS | 100% | 16 | 16 |
| G | I Love this Game! | 58% | 7 | 12 |

©2002-2013 POJ 沪ICP备12005590号-3

| Verdict | Abbreviation | Indication |
|-----------------------|--------------|---|
| Accepted | AC | The solution has produced output that the judge system or a checker program (commonly referred to as a special judge) accepts as correct. |
| Presentation Error | PE | The solution has produced output that is correct in content but incorrect in format. |
| Time Limit Exceeded | TLE | The solution has run for longer time than permitted. This means either the time spent on all test cases exceeds the overall limit or that spent on a single test case exceeds the per-case limit. Note that time limits for solutions in Java are tripled. These solutions are also allowed an extra 110 ms for each test case. |
| Memory Limit Exceeded | MLE | The solution has consumed more memory than permitted. |
| Wrong Answer | WA | The solution has not produced the desired output. |
| Runtime Error | RE | The solution has caused an unhandled exception (as defined by the runtime environment) during execution. |
| Output Limit Exceeded | OLE | The solution has produced excessive output. |
| Compile Error | CE | The solution cannot be compiled into any program runnable by the judge system. |
| System Error | | The judge system has failed to run the solution. |
| Validator Error | | The checker program has exhibited abnormal behavior while validating the output produced by the solution. |

2011

PROGRAMMER → DEVELOPER



2011



努力

WORK
HARD
STAY
HUMBLE

❁ 刷题

- Leetcode
- 百练 OpenJudge

❁ MOOC在线公开课学习

- Machine Learning, Stanford University
- 程序设计实习, 北京大学

❁ 书籍

- 编程之美
- 算法导论

2011



几个数字

2013年，美国的计算机领域劳动力只有**19.8%** 是女性。

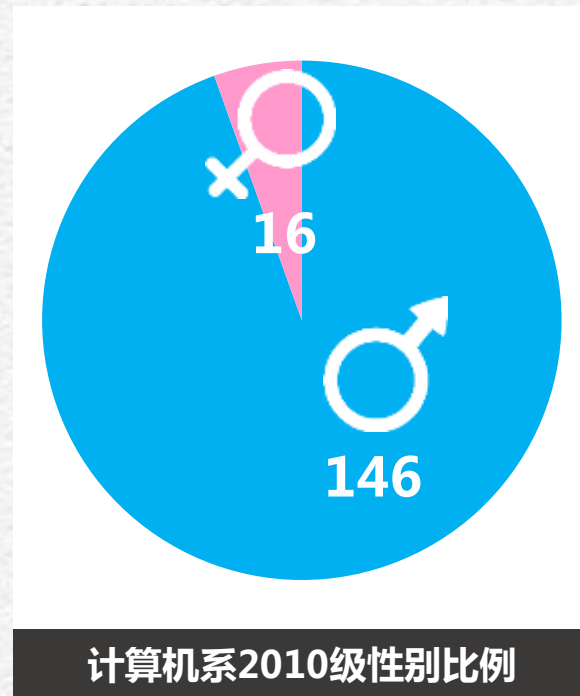
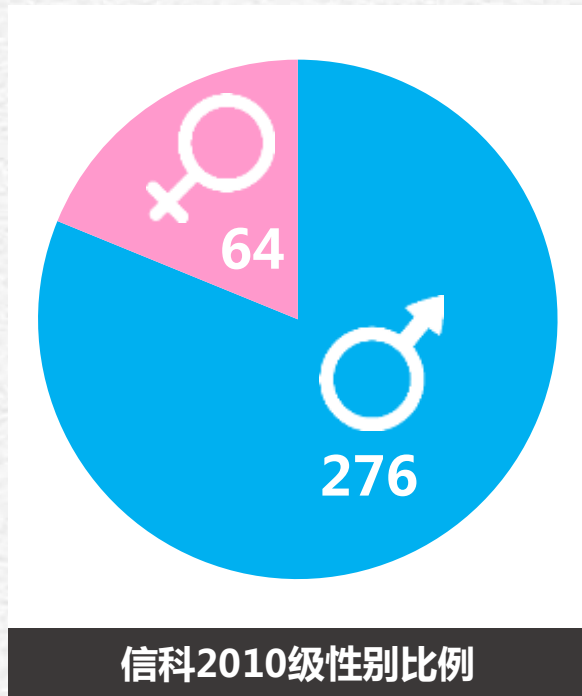
2011年，美国的大学中只有**12%** 的计算机系学生是女性。

在北京大学计算机系，2010年入学时有**18.9%** 的女生，

但2014年毕业时留在计算机领域的人只有**15.6%** 的女生。

2012

男女比例



2012

误解

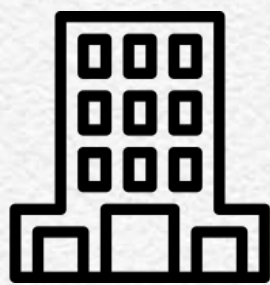


2012

误解



学校



工业界



家庭



朋友

2012

真实是...

PKU EECs

杀得了木马
查得出BUG
下得了厨房
斗得过小三



2012

导师



2013



2013



- ❁ 任课老师、导师、实习领导…
- ❁ 今天的活动~

论文



2013

Segmentation-Based Scale-Invariant Nonlocal Means Super Resolution

Sabery Yang, Jinying Liu*, Qiaochu Li and Zongming Guo
Institute of Computer Science and Technology, Peking University, Beijing, P. R. China, 100871

Abstract—Zooming in/out appears frequently in video shooting, which makes scale vary between frames. And object motion in videos may cause scale change of the object. It leads to the difficulty in finding similar patches and causes the invalidation of nonlocal means super resolution (NLM SR). In this paper, we propose a novel scale-compensated NLM SR algorithm. First, by considering the parameter model, the image is segmented in order to detect regions with different scales. Then, scale variations in different regions are computed based on SIFT description. And patches extracted from different regions are compensated into the same scale to eliminate the effect of scale change. It is shown by experimental results that our proposed algorithm achieves the average PSNR by up to 0.67dB comparing with the state-of-the-art methods. Subjective results demonstrate the proposed method reduces artifacts and preserves more details.

I. INTRODUCTION

Multi-frame super resolution (SR) methods reconstruct a high resolution (HR) frame from multiple low resolution (LR) frames. They are based on the assumption that LR frames can complement each other by a large amount of redundant information. Motion estimation techniques are employed in SR to obtain redundant information. However, due to the complexity of motion, unavoidable motion estimator error leads to annoying artifacts in super resolved HR frame. To avoid this problem, Peter *et al.* [1] proposed a motion-estimation-free algorithm based on NLM. NLM SR takes the advantage of the redundancy of patches existing in images. It obtains a better HR image with an explicit motion estimation by replacing every pixel with a weighted average of its neighborhood.

In the past decade, researchers made progress in NLM SR by improving patch matching and exploiting more information. Some suggest adaptively choosing parameters. The adaptive choice of parameters for NLM SR relates to the size of the patch and search windows. The proper size of the patch and search window can help us find more accurate patches to improve the performance of NLM. Chung *et al.* [2] proposed using multiband search window and adaptive patch size. But the method of mobilizing search window is based on pixel and might fail to a local optimal solution easily. Some develop a new way of calculating similarities to use more available information. Patches which better represent the image characteristics are captured and thus the efficiency of matching these patches is improved. Guosong *et al.* [3] proposed

two rotation-invariant denoising methods, which are based on moment and rotation-invariant patch searching. Meanwhile, patch matching relates to the measurement of similarity, which assumes that similar patches can always be found in a fixed search window. But the assumption may not work in practice.

Our previous work [4][5] took rotation and illumination into consideration. However, in practical captured videos, global and local scale change frequently appear. While global scale change is caused by camera motion, object motion leads to local scale change. Taking Fig.1 as an example, camera motion and object motion bring different scale changes in different regions. As a result of scale change, it is difficult to find similar patches for NLM, which affects the performance of NLM SR. Moreover, all of these aforementioned improved NLM methods do not consider the problem of scale change.



Fig. 1. Scale changing effect in adjacent frames.

In order to solve the above problem and overcome the different scales in different regions, we propose a new method of patch matching to find similar patches for NLM. We segment the frames into several regions based on parameter model. The scale operator based on Scale-Invariant Feature Transform (SIFT) [6] is used to help us to obtain the scale differences and modify all searched patches into the same scale to compute the weights for NLM SR.

The rest of the paper is organized as follows. In Sec.II, improved NLM SR algorithms are reviewed. Sec.III focuses on the segmentation-based scale-invariant nonlocal means super resolution algorithm. The experimental results can be seen in Sec.IV and a brief conclusion is shown in Sec.V.

II. OVERVIEW OF IMPROVED NONLOCAL MEANS SR

In the process of NLM SR [1] reconstruction, we usually hold the cost function as a minimization problem.

$$X = \arg \min_{\hat{X}} \left(\sum_{i,j \in \Omega} \sum_{l \in \Omega} \sum_{k \in \Omega} w(k, l, i, j) \left[\left| \hat{X}_{ij} - P_{ij} \right|^2 + \lambda \left(\left| \hat{X}_{ij} - P_{ij} \right|^2 \right)^{\frac{1}{\alpha}} \right] \right)$$

$$w(k, l, i, j) = \exp \left(- \frac{|P_{ij} - P_{kl}|^2}{\sigma^2} \right) f(k, l, i, j)$$

*Corresponding author
This work was supported by National Natural Science Foundation of China under contract No.61171076, National Key Technology R&D Program of China under Grant 2012BA010001 and Chinese Postdoctoral Fund of Ministry of Education of China under contract No.2013000120117.

论文

❀ 读论文！

- Google Scholar
- ArXiv.org

❀ MOOC在线公开课学习

❀ 研讨交流合作

- 学术会议
- 专题讨论？集智俱乐部读书会等
- 邮件联系（方式很重要XD）

2013

竞选学生会



2013

学生会



2013

毕设

6月7日信息科学技术学院进行了评选2010级本科生优秀毕业论文的答辩。以下是“十佳”和优秀论文作者名单（排名不分先后）：

信息科学技术学院 2010 级本科生十佳优秀论文作者及导师

杨撒博雅
导师：刘家瑛

陈林
导师：边凯归

史业民
导师：黄铁军

胡志挺
导师：崔斌

郑子杰
导师：吴建军、宋令阳

杨林青
导师：李红燕

罗牧龙
导师：王润声

邵林博
导师：王玮

邱博雅
导师：马猛、宋令阳

张高瀚
导师：叶凡

2014



🌸 榜样的力量

🌸 勇敢表达

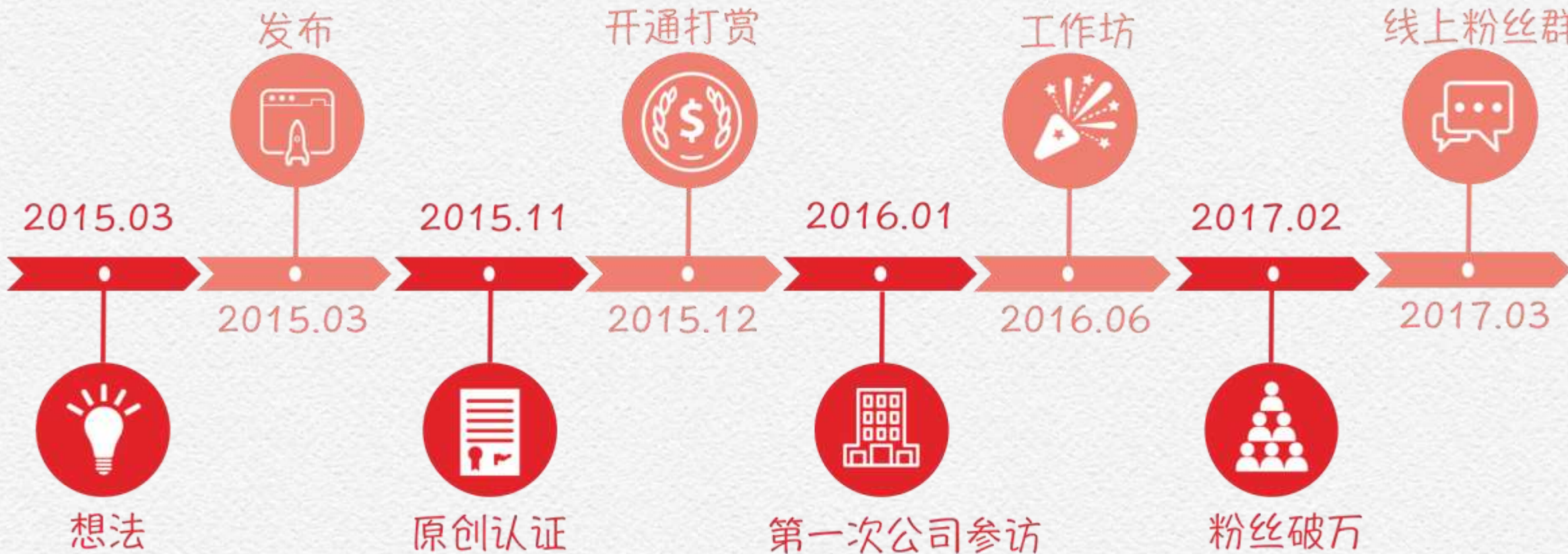
🌸 向前一步

2014



GIRLSWHOCODE 里程碑

微信公众号
GirlsWhoCode



2015

面临选择



2015

现状测试



VS



2015

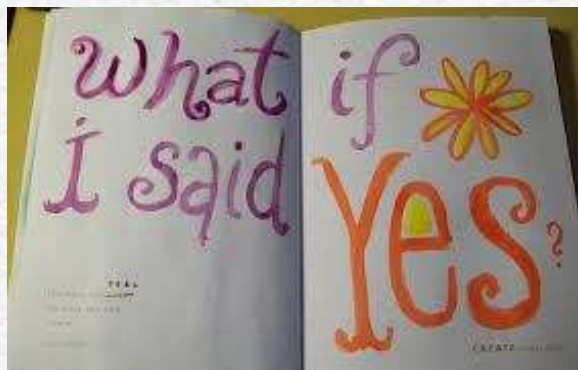
现状测试

WHAT WOULD YOU DO
IF YOU WERE NOT
AFRAID?

2015



尝试



❀ 如果成功了, (☆w☆)

❀ 如果失败了, 大不了重头再来...

❀ 但是我拥有了

- 勇气
- 经验
- 支持
-

2015



奖学金



Google Anita Borg 奖学金

Google Women Techmakers 奖学金

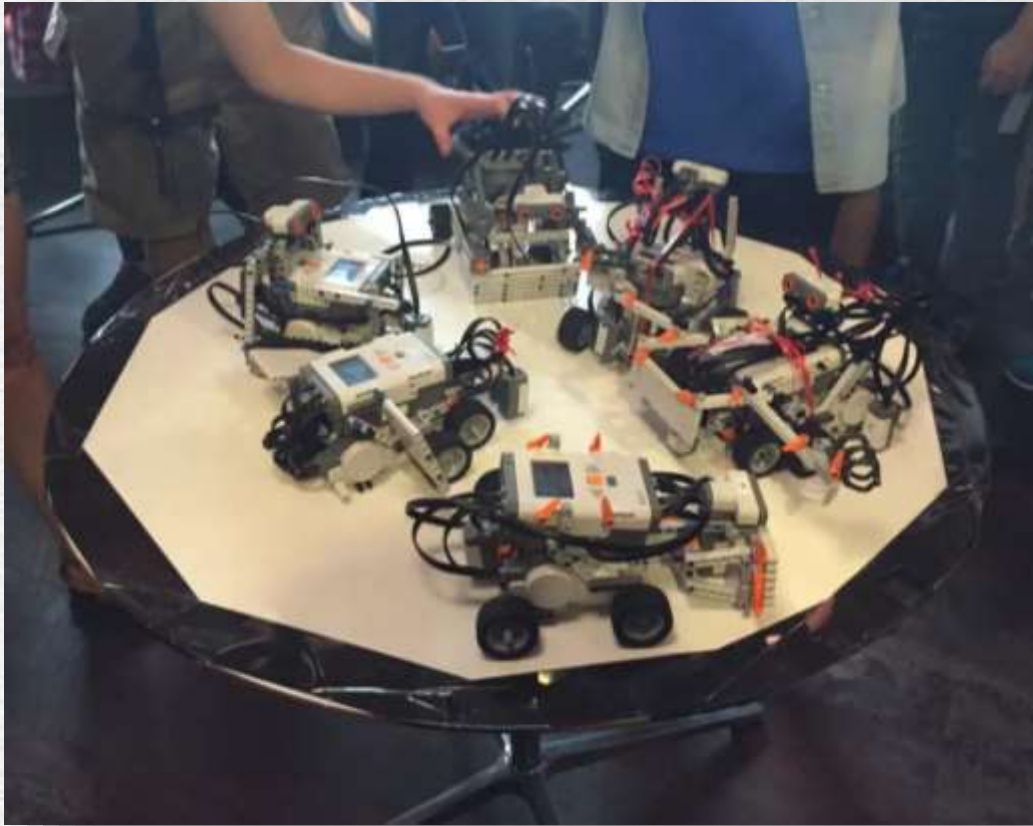
谷歌女性工程师奖学金

2015

奖学金



2015



MINDSTORMS

2015



奖学金

-  **Microsoft Research Women's Fellowship**
Female PhD from selected US top universities
-  **Google Anita Borg Scholarship**
Around 120 female students globally
<http://www.google.com/anitaborg/>
-  **Facebook Grace Hopper Scholarship**
20 female students/engineers globally (up to 50 in 2016)
<https://www.facebook.com/careers/program/gracehopper2016/>
-  **Grace Hopper Travel Grants**
500 female students/engineers globally
<https://ghc.anitaborg.org/>

2015



团队



❁ 线下活动

- WomenTechmakers
- Microsoft Female Open Day
- GirlsWhoCode Workshop

❁ Lean In Circles (Global)

- 不止针对计算机领域

❁ Grace Hopper Celebration

❁ GirlsWhoCode



GOOGLE I/O

- 2016年5月18-20日
- Shoreline Amphitheatre



GOOGLE I/O

- Google Women TechMakers
 - 有史以来最高比例的女性参会者



2016

GRACE HOPPER CELEBRATION

- 由Anita Borg Institute发起
- 纪念Grace Hopper博士
- 世界上最大的女性科技者集会
- 2016年在美国休斯顿，超过1万人

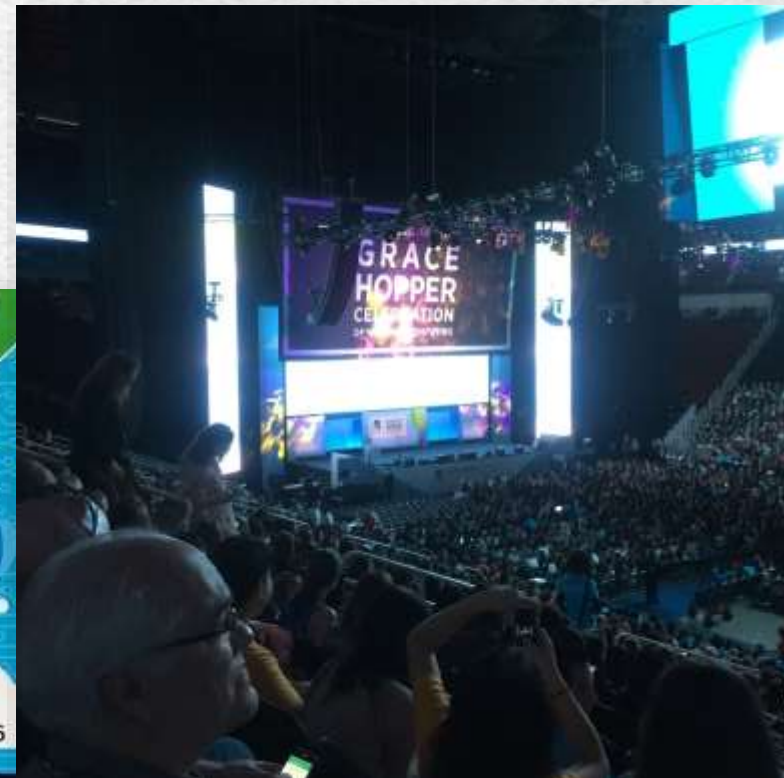


ANITA BORG INSTITUTE
WOMEN TRANSFORMING TECHNOLOGY

GRACE HOPPER
CELEBRATION OF WOMEN IN COMPUTING

GRACE HOPPER CELEBRATION

- 2017年国庆期间在美国佛罗里达
- Career fair → 绝佳的美工作机会！



GRACE HOPPER CELEBRATION

- SWAG SWAG SWAG!!!!



GRACE HOPPER CELEBRATION

- Women Techmakers
- Scholar Alumni



2016

收获



努力



引导



表达



尝试



团队

WORK
HARD
STAY
HUMBLE



GIRLSWHOCODE

微信公众号
GirlsWhoCode



干货

ICCV 2015 揭开152层神经网络的面纱

漫步

海法的初相遇

日常

春节快乐，一起看计算机生成的春联

女神

听Fei-Fei Li教计算机理解图像

职场

我为什么加入Airbnb:一个不务正业程序员的找工季反思

悦己

梦中的姑娘依然长发迎空，那你呢

GIRLSWHOCODE

- 期待GHC in China！！
- 加入我们一起努力！！！！
- 欢迎领取小贴纸^^



Thank You!

yangsaboya@gmail.com
girlswhocode@163.com