

1.结对

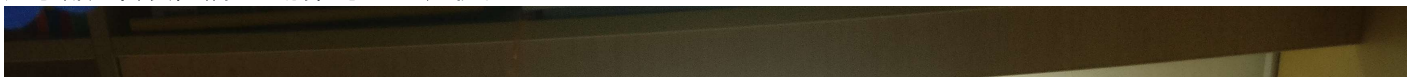
学号	结对同学 (链接)
031602511	何家伟

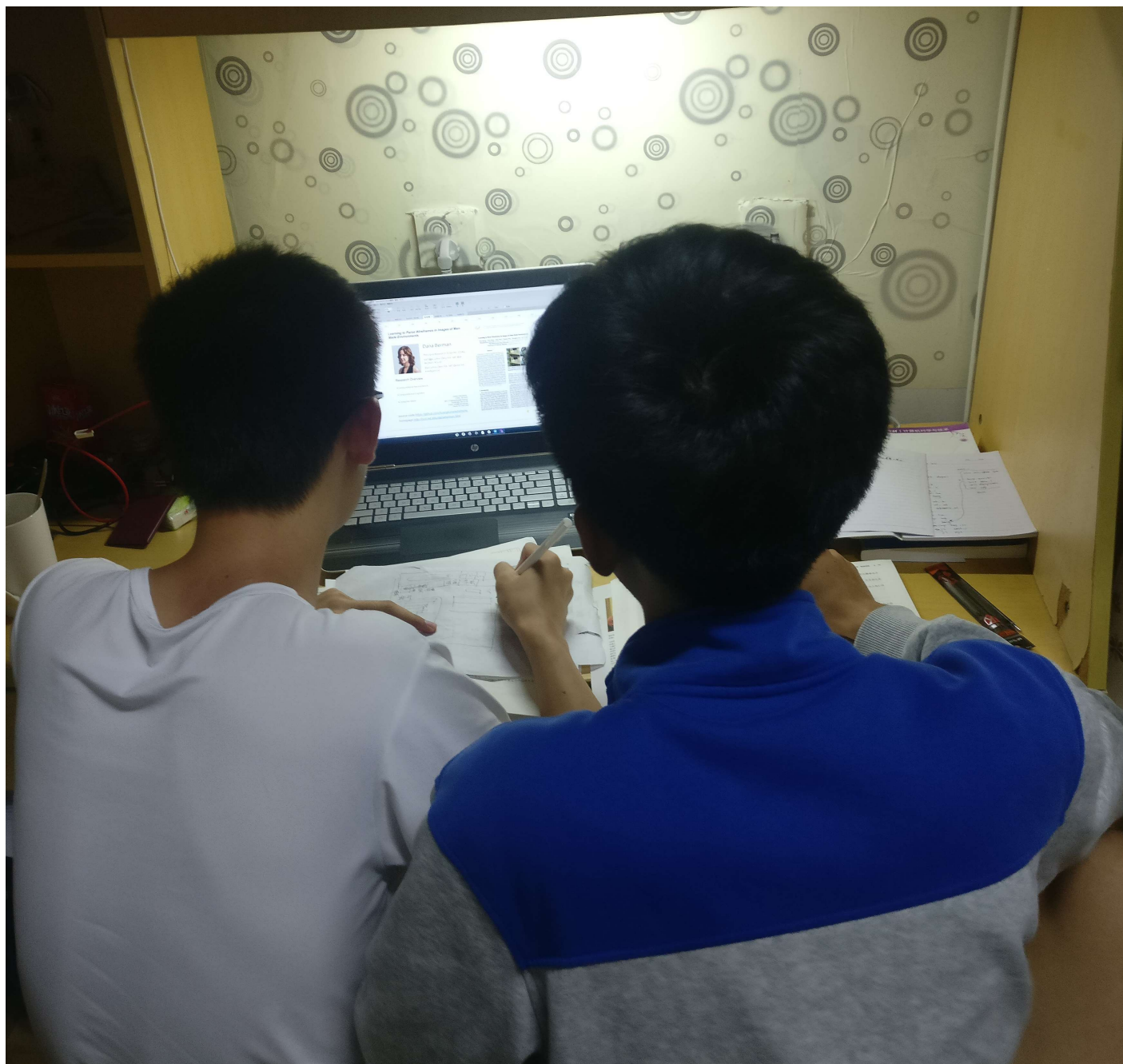
[本作业博客链接](#)

2.原型开发工具: Axsure RP8

3.结对过程

大家都是舍友，相互了解，学习也方便。





4.psp表格

PSP2.1	Personal Software Process Stages	预估耗时 (分钟)	实际耗时 (分钟)
Planning	计划	80	60
· Estimate	· 估计这个任务需要多少时间	80	60
Development	开发	900	1000
PSP2.1	Personal Software Process Stages	预估耗时 (分钟)	实际耗时 (分钟)

· Analysis	· 需求分析 (包括学习新技术)	400	450
· Design Spec	· 生成设计文档	30	50
· Design Review	· 设计复审	30	60
· Coding Standard	· 代码规范 (为目前的开发制定合适的规范)	0	0
· Design	· 具体设计	150	180
· Coding	· 具体编码	0	0
· Code Review	· 代码复审	0	0
· Test	· 测试 (界面优化)	190	260
Reporting	报告	90	120
· Test Repor	· 测试报告	60	90
· Size Measurement	· 计算工作量	30	30
· Postmortem & Process Improvement Plan	· 事后总结, 并提出过程改进计划	主要时间都用在在学习使用新工具上	事先对于界面进行大概的设计会提高设计的效率

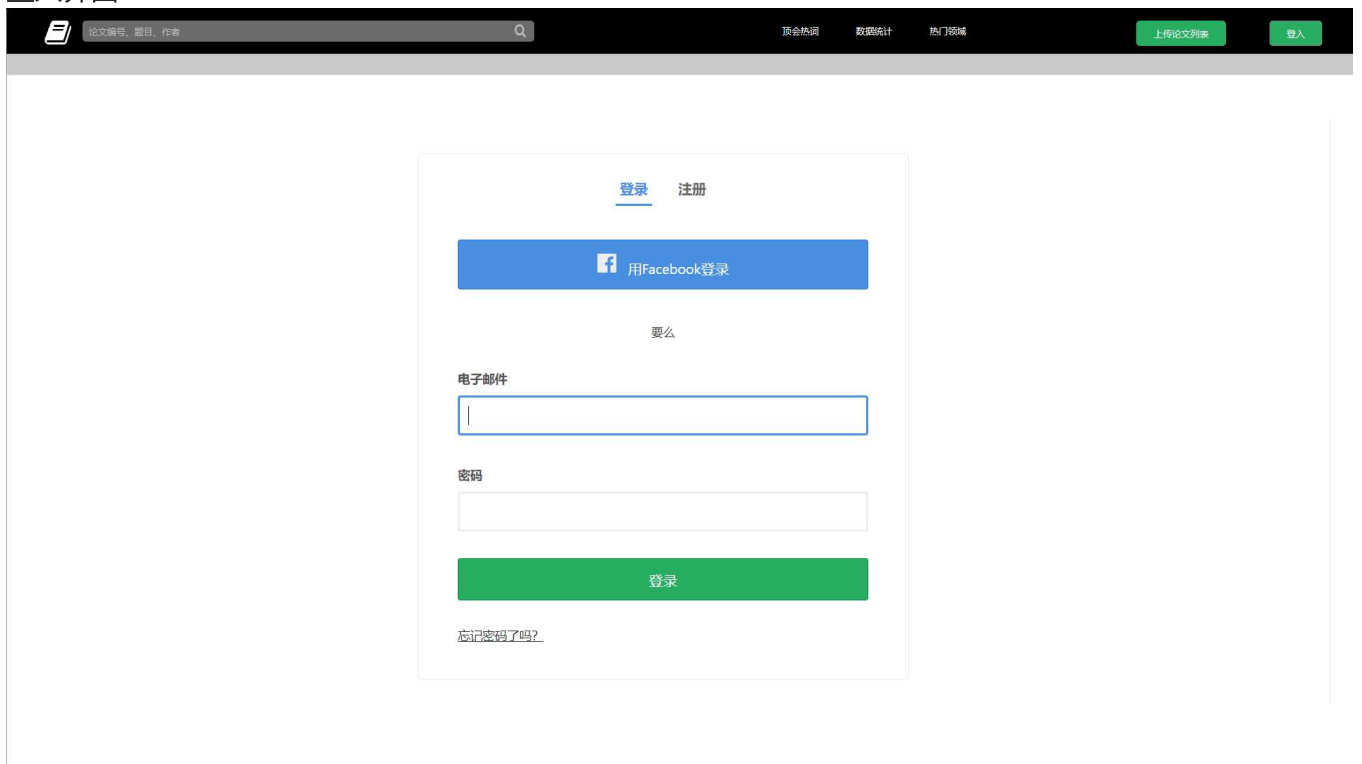
5.NABCD模型

- **(Need, 需求)**
 - 用户核心需求带有筛选功能的单篇论文检索功能。
 - 根据所输入论文相关信息进行检索后, 能够返回论文相关的 paper、source code、homepage 等信息
 - 用户能够**定制自己的论文列表**并能够对列表中的论文**进行详细的查看**
 - 用户需要直观的查看多年间、不同顶会的**热词走势和热门研究领域**以**快速了解时代热门**
 - 根据**数据分析国家、学校的学术方向及能力**
- **A(Approach, 做法)**
 - **带有筛选功能的单篇论文检索**
 - 制作一个仅限于论文的搜索引擎页面
 - **定制论文列表并对论文进行详细查看**
 - 设置用户账号确保每个用户能够自定义列表, 列表中设置移除论文功能, 提供用户上传论文列表按钮, 查看论文时提供收藏功能
 - **快速了解时代热门**
 - 搜索引擎页面设置 **顶会热词`热门领域** 页面按钮, 根据数据分析自动生成图表
 - **分析国家、学校的学术方向及能力**
 - 搜索引擎页面设置 **数据统计** 页面按钮, 根据数据分析自动生成图表
- **B(Benefit, 好处)**
 - **基于网页, 无需下载客户端**
 - 基于web的设计可以令用户使用时无需下载客户端, 随开随用, 降低用户使用成本。

- **用户可自定义论文列表**
 - 包含论文的收藏及移除收藏，方便用户定制自己需要的论文
- **数据图表化**
 - 数据使用图表化直观的呈现在用户面前，易于快速获取信息
- **C(Competitors, 竞争)**
 - 优势
 - 界面简洁友好，无多余功能
 - 基于web设计，即开即用，使用成本低
 - 劣势
 - 未设置类似社区的功能，用户间交流或相互推荐论文不方便
- **D(Delivery, 推广)**
 - 在高校师生间进行推荐听取用户意见，如若满意则赢取用户口碑，有不足则考虑改进
 - 在百度等论文搜索页面下进行推广

6.设计说明

1. 登入界面



2. 注册界面



登录 注册

用Facebook注册

要么

名字

姓氏 (可选)

电子邮件

密码 (最少6个字符)

注册

3. 论文的列表检索。用户通过上传列表，检索出论文。侧边栏作用：通过侧边栏对列表进行删改，也可以点击论文题目查看论文详情。

The screenshot displays a search results page for a paper list. At the top, there is a search bar with the text "论文编号、题目、作者" and a search icon. To the right of the search bar are links for "首页热词", "数据统计", and "热门领域", along with buttons for "上传论文列表" and "登入". Below the search bar, there are two dropdown menus for "时间" (set to "全部") and "属性" (set to "全部"). The main content area shows a grid of six paper cards, each with a thumbnail image, a title, an abstract, and a URL. The papers listed are:

- Graph-Structured Representations for Visual Question Answering**: Abstract: This paper proposes to improve visual question answering (VQA) with structured representations of both scene contents and questions. A key challenge in VQA is to require joint reasoning over the visual and text domains. The predominant CNN/LSTM-based approach to VQA is limited by monolithic vector representations that largely ignore structure in the scene and in the question. CNN feature vectors cannot effectively ...
- Probabilistic Plant Modeling via Multi-View Image-to-Image Translation**: Abstract: We propose a method for inferring three-dimensional (3D) plant branch structures that are hidden under leaves from multi-view observations. Unlike previous geometric approaches that heavily rely on the visibility of the branches or use parametric branching models, our method makes statistical inferences of branch structures in a probabilistic framework. By inferring the probability of branch existence using a Bayesian...
- Learning to Parse Wireframes in Images of Man-Made Environments**: Abstract: A New Dataset for Wireframe Detection As part of our learning-based framework to wireframe detection, we have collected 5,462 images of man-made environments. Some examples are shown in Fig. 2. The scenes include both indoor environments such as bedroom, livingroom, andkitchen,andoutdoorscenes, suchashouse and yard...
- Pose Transferrable Person Re-Identification**: Abstract: Person Re-identification (re-id) faces two major challenges: the lack of cross-view paired training data and learning discriminative identity-sensitive and view-invariant features in the presence of large pose variations. In this work, we address both problems by proposing a novel deep person image generation model for synthesizing realistic person images conditional on the pose.
- Geometry-Aware Scene Text Detection with Instance Transformation Network**: Abstract: Learning Where to Start and When to Stop Bastien Moyssetx, Christopher Kermorvany, ... YOLO based and SSD based approach for scene text detection. Moysset et al. [16] also propose the separate detection of ... This detection neural network system is detailed in Part II and the left-side strategy is explained in...
- Stereoscopic Neural Style Transfer**: Abstract: This paper presents the first attempt at stereoscopic neural style transfer, which responds to the emerging demand for 3D movies or AR/VR. We start with a careful examination of applying existing monocular style transfer methods to left and right views of stereoscopic images separately.

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- Probabilistic Plant Modeling via Multi-View Image-to-Image Translation
- Learning to Parse Wireframes in Images of Man-Made Environments
- Pose Transferrable Person Re-Identification
- Geometry-Aware Scene Text Detection with Instance Transformation Network
- Stereoscopic Neural Style Transfer

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http://openaccess.thecvf.com/content_cvpr_2017/papers/Teney_Graph-Str...

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http://openaccess.thecvf.com/content_cvpr_2017/papers/Huang_Learning_to_Parse_CVPR...

Learning to Parse Wireframes in Images of Man-Made Environments

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4. 单篇论文检索 (论文详情)。用户通过界面上方的搜索栏输入论文题目、编号、作者等精准检索出：论文作者信息，论文源码，论文内容，用户也可以收藏喜欢的重要论文。

论文编号、题目、作者
顶会热词 数据统计 热门领域
上传论文列表
登入

Learning to Parse Wireframes in Images of Man-Made Environments



Dana Berman

Principal Research Scientist, CSAIL
MIT Executive Director, MIT-IBM
Watson AI Lab
Executive Director, MIT Quest for
Intelligence


Research Overview

- Computational Neuroscience
- Computational Cognition
- Computer Vision

Contact Information:
CSAIL 32-D432
MIT, 77 Massachusetts Avenue
Cambridge, MA 02139
Email: dberm@csail.mit.edu
Phone: 617 452 2492

source code: <https://github.com/huangkuns/wireframe>

homepage: <http://cvcl.mit.edu/danaberman.html>



This CVPR paper is the Open Access version, provided by the Computer Vision Foundation. Except for this watermark, it is identical to the version available on IEEE Xplore.

Learning to Parse Wireframes in Images of Man-Made Environments

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¹ShanghaiTech University {huangkun, wangyf, dingtj, gaoshh}@shanghaitech.edu.cn
²The Pennsylvania State University zzh20@psu.edu
³University of California, Berkeley yma@eecs.berkeley.edu

Abstract

In this paper, we propose a learning-based approach to the task of automatically extracting a "wireframe" representation for images of cluttered man-made environments. The wireframe (see Fig. 1) contains all salient straight lines and their junctions of the scene that encode efficiently and accurately large-scale geometry and object shapes. In this end, we have built a very large new dataset of over 5,000 images with wireframes thoroughly labelled by humans. We have prepared two convolutional neural networks that are suitable for extracting junctions and lines with large spatial support, respectively. The networks trained on our dataset have achieved significantly better performance than state-of-the-art methods for junction detection and line segment detection, respectively. We have conducted extensive experiments to evaluate quantitatively and qualitatively the wireframes obtained by our method, and have convincingly shown that effectively and efficiently parsing wireframes for images of man-made environments is a feasible goal within reach. Such wireframes could benefit many important visual tasks such as feature correspondence, 3D reconstruction, vision-based mapping, localization, and navigation. The data and source code are available at <https://github.com/huangkuns/wireframe>.

1. Introduction

How to infer 3D geometric information of a scene from 2D images has been a fundamental problem in computer vision. Conventional approaches to build a 3D model typically rely on detecting, matching, and triangulating local image features (e.g. corners, edges, SIFT features, and patches). One great advantage of working with local features is that the system can be somewhat oblivious to the scene, as long as it contains sufficient distinguishable features. Meanwhile, modern applications of computer vision systems often require an autonomous agent (e.g., a car, a robot, or a UAV) to efficiently and effectively negotiate with a physical space in cluttered man-made (indoor or outdoor) environments. Such scenarios present significant challenges to the current local-feature based approaches: Man-made environments typically consist of large textured surfaces (e.g. white walls or the ground), or they may be full of repetitive patterns hence local features are ambiguous to match, and the visual localization system is required to work robustly and accurately over extended textures and sometimes across very large baseline between views. Nevertheless, the human vision system seems capable of effortlessly localizing or navigating among such environments arguably by exploiting large-scale (global or semi-global) structural features or regularities of the scene. For instance, many works [1, 2, 3, 4, 5, 6] have demonstrated that prior knowledge about the scene such as a Manhattan world could significantly benefit the 3D reconstruction tasks. The Manhattan assumption can often be violated in cluttered man-made environments, but it is rather safe to assume that man-made environments are dominantly piecewise planar hence rich of visually salient lines (intersection of planes) and junctions (intersection of lines). Conceptually, such junctions or lines could just be a very small "subset" among the local corner features (or SIFT) and edge features detected by conventional methods, but they already encode most information about large-scale geometry of the scene. For simplicity, we refer to such a set of lines and their




Figure 1. First row: Examples of typical indoor or outdoor scenes with geometrically meaningful wireframes labeled by humans. Second row: Wireframes automatically extracted by our method.

★ 已收藏

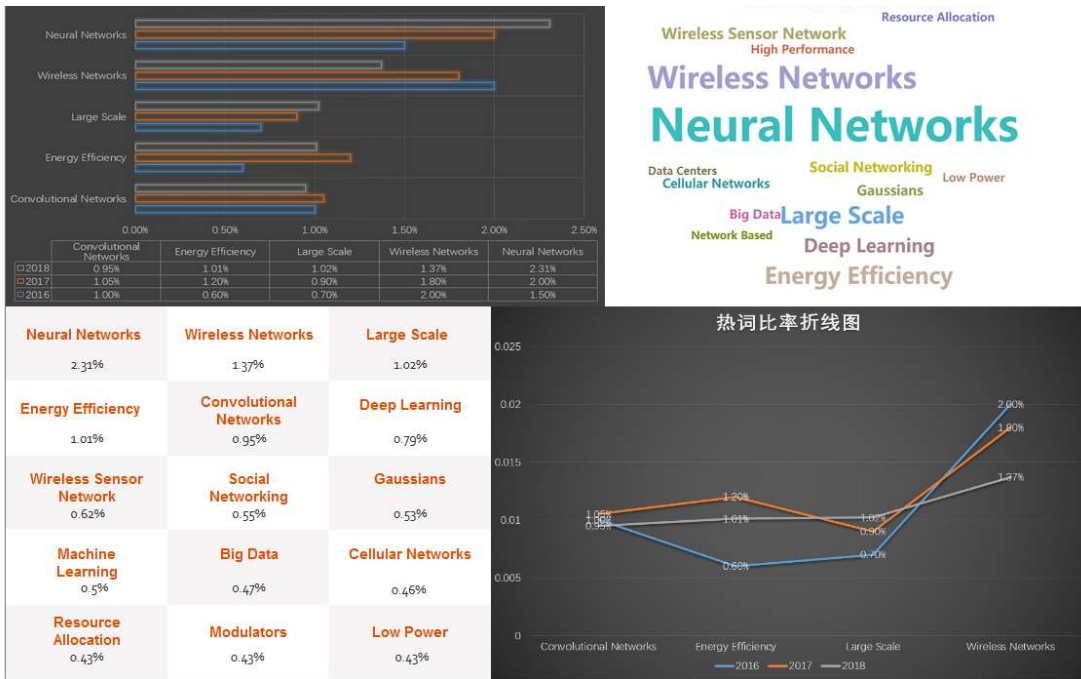
5. 顶会热词。以历年热词对比图表的形式展现热词，生成了热词图谱，可以点击热词以访问对应的论文区。

论文编号、题目、作者
顶会热词 数据统计 热门领域
上传论文列表
登入

计算机热词在论文中出现比率

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Machine Learning
Convolutional Networks



6. 热门领域。分类了六大热门领域，用户可以探索最受欢迎的领域，领域分区下显示收录的论文篇目数。



热门领域

探索最受欢迎的领域



Computer Architecture
987Papers



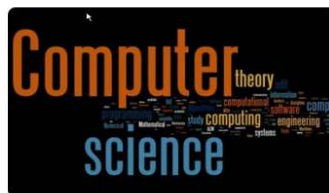
Wireless Networks
894Papers



Network Security
765Papers



Software Engineering
572Papers



Computer Science
657Papers



Computer Graphics
1058Papers

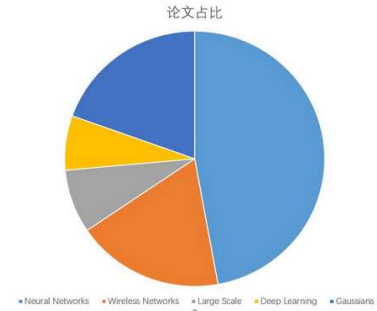
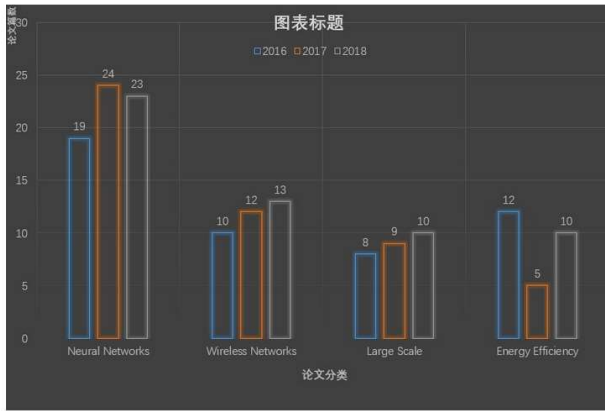
7. 数据分析。按照国家学校，对论文进行统计，并分析不同分类的论文比重，生成图表可视化。



国家:

大学或者机构:

年份:



7.遇到的困难及解决方法

1. 困难：之前两个人都没有设计的经验，对于模型的设计一筹莫展。解决：两个人去网上看了很多优秀网站的界面设计从中寻找灵感。
2. 困难：对于事先设计好的界面模型，发现在实际应用中会对用户很不友好。解决：尝试添加控件或者添加页面将功能细化。
3. 困难：没有接触过的模型设计软件，使用起来很困难，进度很慢。解决：两个人进行分工，学习工作各自部分，以此提高效率。

8.自己学习的进度条

第N周	新增代码	累计代码	本周学习耗时	累计学习耗时	重要成长
1	463	463	10	10	C语言容器、文件读写、单元测试及代码优化
2	暂无	暂无	暂无	暂无	暂无

ps:作业pdf