IEEE网络课堂之二:

科技论文写作

IEEE

2016年

本讲内容参考2014/2015/2016 IEEE作者研讨会的IEEE Fellow演讲报告

◆IEEE
Advancing Technology
for Humanity

2016下半年网络课堂系列

WebEx网络培训安排与登录链接
(注意: Webex网络培训时间统一定为周五下午2:30-3:30)

一(a)	一（b）	二（a）	二（b）	二（c）	四	五	六
Webex网络培训时间统一定为周五下午2:30-3:30							
9月23日 注册	9月30日 注册	11月11号 注册	11月25号 注册	12月16日 注册	12月23日 注册	11月4日 注册	9月9日 注册
10月21日 注册	10月28日 注册						
11月18号 注册	12月2日 注册						
12月9日 注册							

EE
Advancing Technology
for Humanity

培训要点

- 出版渠道选择
- 拒稿常见原因
- 科技论文结构

IEEE
Advancing Technology for Humanity

About the IEEE
关于IEEE

- World's largest technical membership association with over 430,000 members in over 160 countries

- 世界最大的技术学会，在全球160多个国家拥有43万多会员

- Not for profit organization dedicated to "Advancing Technology For Humanity"

- 非盈利组织，致力于为人类谋福祉

- Four Core areas of activity

- 核心业务领域

  – **Membership organization**

  – **Conferences organizer**

  – **Standards developer**

  – **Leading Publisher**

◆IEEE
Advancing Technology
for Humanity

Choices

选择

IEEE
Advancing Technology
for Humanity

Publish
IEEE journal or IEEE conference?
发表IEEE期刊或会议？

- A **journal article** is a fully developed presentation of your work and its final findings 期刊文章是研究工作和最终结果的完整展示
  - Original research results presented 展示原创研究结果
  - Clear conclusions are made and supported by the data 做出清晰推论，并辅以数据支持
- A **conference article** can be written while research is ongoing 会议文章可以是正在进行没有完成的研究
  - Can present preliminary results or highlight recent work 可展示初期成果或强调最近工作
  - Gain informal feedback to use in your research 获得非正式反馈用于后续研究
- Conference articles are typically shorter than journal articles, with less detail and fewer references 会议论文通常短于期刊论文,细节和参考文献也少些

IEEE
Advancing Technology
for Humanity

IEEE journal or IEEE conference?
发表IEEE期刊或会议？

IEEE Journals

IEEE Conferences

PRO
优点

- IEEE journals are cited 3 times more often in patent applications than other leading publisher's journals IEEE期刊被引次数高

- IEEE Conference proceedings are recognized worldwide as the most vital collection of consolidated published articles in EE, computer science, related fields   IEEE会议论文是全球电子电气计算机方向最重要内容

CON
缺点

- A high percentage of articles submitted to any professional publication are rejected 投稿期刊被拒机率高

- Per IEEE Policy, if you do not present your article at a conference, it may be suppressed in IEEE *Xplore* and not indexed in other databases 作者须现场展示论文后,文章才能收入IEEE Xplore

IEEE
Advancing Technology for Humanity

Publish
Finding the right IEEE publication or IEEE conference
选择合适的IEEE期刊或会议

IEEE has **180 unique publications** covering a wide range of technical areas
180多种IEEE期刊

- Review the journal listings 浏览期刊列表
  - Who reads it 受众
  - What they publish 内容
  - What kinds of articles they want 期待文章类型

IEEE publishes **1,500+** leading-edge **conference proceedings** every year
每年1500多场IEEE前沿会议

- Review the conference calendar 浏览会议列表
  - Find a good match for your research subject matter 寻找与研究方向吻合的会议
  - Ensure you are available to present 确保你可以出席会议

◆IEEE
Advancing Technology
for Humanity

Audience

受众

Basic Questions
基本问题

Are you writing this paper for the sake of writing a paper? 你是为了写论文而写论文？

Or do you want to make a difference in your technical community? 还是想在某个技术群体中做出贡献？

Scientific research publishing
科学研究出版

- Who writes scientific papers? 谁在撰写科技文章
  - Whoever solves a new and important problem in their field 在各自领域解决全新重要问题的研究者
  - Engineers, scientists, educators and researchers from: 来自不同机构的工程师、科学家和教育者
    - ➤ Corporations
    - ➤ Academia
    - ➤ Government
  - Students typically write and present conference papers before submitting journal articles 学生在发表期刊论文前通常先发表会议论文

◆IEEE
Advancing Technology
for Humanity

What IEEE editors and reviewers are looking for
IEEE编辑和评审人在寻找什么

- Content that is appropriate, in scope and level, for the journal 内容符合期刊收录范围
- Clearly written original material that addresses a new and important problem 清晰表达的原创研究，解决全新重要问题
- Valid methods and rationale 有效的方法
- Conclusions that make sense 有意义的结论
- Illustrations, tables and graphs that support the text 图表图像有力支持文字描述
- References that are current and relevant to the subject 能反映最近研究进展的相关参考文献

Why IEEE editors and reviewers reject papers
IEEE编辑和评审人拒稿原因

- The content is not a good fit for the publication 内容不适合该期刊
- There are serious scientific flaws: 严重的科学缺陷
  - Inconclusive results or incorrect interpretation 无法信服的结果或不正确的解释
  - Fraudulent research 学术造假
- It is poorly written 文笔差
- It does not address a big enough problem or advance the scientific field没有解决重大问题或提升当前科技水平
- The work was previously published 研究之前已经出版过
- The quality is not good enough for the journal 质量没有达到期刊要求
- Reviewers have misunderstood the article 评审人误解文章

Why IEEE editors and reviewers reject papers:Remove each reason
IEEE 编辑和评审人拒稿原因

- The content is not a good fit for the publication 内容不适合该期刊

- Conference: in the list of example topics in the call for paper
- Journal: special issue – already have editors with some reviewers – need to be in the scope of the call for paper
- Journal: general – may take time to find editor and reviewers

- The longer it takes, the less timely is the paper.

IEEE
Advancing Technology for Humanity

Why IEEE editors and reviewers reject papers:Remove each reason
IEEE 编辑和评审人拒稿原因

- There are serious scientific flaws:严重的科学缺陷
  - Inconclusive results or incorrect interpretation
  - Fraudulent research

- Poor research work cannot produce a good paper!

IEEE
Advancing Technology
for Humanity

Why IEEE editors and reviewers reject papers:Remove each reason
IEEE 编辑和评审人拒稿原因

- It is poorly written 文笔差

- See technical writing

IEEE
Advancing Technology for Humanity

Technical Writing科技写作

- How to communicate technical and often quite complicated information so that the reader can understand with less difficulty, 如何传递复杂技术信息让读者更容易理解
- How to organize the thoughts, and 如何组织想法
- How to draw the attention and interests of your reader.如何吸引读者的注意力和兴趣

- Enable people to read with ease of understanding and interest 促使读者带着兴趣阅读并易于理解
  - so that more people will "enjoy" reading your paper 让更多人"享受"阅读你的文章

Technical Writing科技写作

Organize thoughts, enhance understanding组织想法 促进理解

- ▣ Organize the contents like a presentation 像演讲报告那样组织内容 – order your thoughts into a list of points, connect them in a logical flow with one point leading to the next but does not rely on knowledge from future points

- ▣ Organizing the thoughts during research helps to better understand the research and helps to identify the gaps 研究中整理思路有助于更好地理解研究并识别差距

- ▣ Make figures, trees, tables to help the reader (including yourself) to better understand the work. 图表图像有助于读者更好理解内容

◆IEEE
Advancing Technology for Humanity

When English is not one's mother language 当英语不是你的母语

- The structure and style in English is different from most Asian languages. 英语结构与风格不同于大多数亚洲语言

- Writing a paper in a different language first and then translating into English often results in difficulty for the reader to understand. 先用另一种语言写作然后翻译成英文,会让读者更难理解

- Write directly in English in the first place. 一开始就直接用英文写作

Advice from IEEE Expert

- 多多模仿研习领域专家的论文，熟悉结构与经典句式
  - IEEE Editor
  - IEEE Fellow
  - Native English Speaker

Why IEEE editors and reviewers reject papers:Remove each reason
IEEE 编辑和评审人拒稿原因

- It does not address a big enough problem or advance the scientific field 没有解决重大问题或提升当前科技水平

- Even excellent research methods on an unimportant problem still cannot produce a good paper.

- Spend time to choose/study the problem before you start your research
  - hot topic, even an important topic will age and lose interest
  - useful topic

- Reviewers are asked to rate the paper as
- important contribution?
- Incremental contribution?
- Yet another paper?

IEEE
Advancing Technology
for Humanity

Why IEEE editors and reviewers reject papers:Remove each reason
IEEE 编辑和评审人拒稿原因

- The work was previously published 研究之前已经出版过
- The quality is not good enough for the journal 质量没有达到期刊要求

- Typical IEEE paper: 6 pages
- Typical Journal paper: 8-12 pages

- After publishing a conference paper, it may still be possible to publish a journal paper you are providing
- at least 40% new content – not prolonging existing content or adding details, but new and important content

Why IEEE editors and reviewers reject papers:Remove each reason
IEEE 编辑和评审人拒稿原因

- Reviewers have misunderstood the article 评审人误解文章
- Instead of arguing with reviewer, revise to clarify your point. It will then improve your paper.
- If a reviewer does not understand, it is likely that other readers will not understand

- Arguing with review causes delay, then the paper may not be timely anymore.

- Use the reviewers comments to help you improve your paper.
- If a reviewer gives you low rating, the reviewer MUST give technical reasons. By fixing the problems pointed out by the reviewers, there will be less criticism to your revised paper.

Structure
结构

Elements of a manuscript 主体结构

Title 题目

Abstract 文摘

Keywords 关键词

Introduction 引言

Methodology 方法

Results/Discussions/Findings
结果

Conclusion 总结

References 参考文献

12/16/2016

IEEE
Advancing Technology
for Humanity
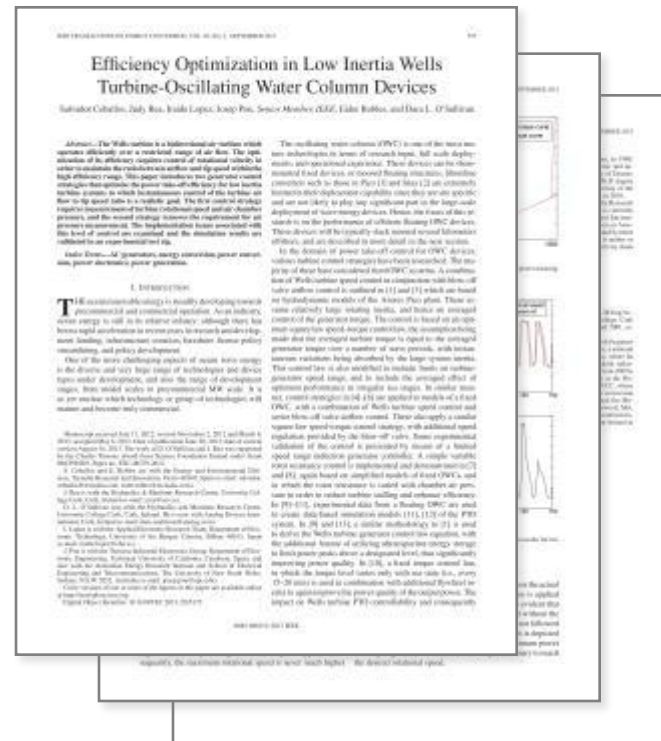
Good vs. Bad Title 好题目/坏题目

A Human Expert-based Approach to Electrical Peak Demand Management

VS

A better approach of managing environmental and energy sustainability via a study of different methods of electric load forecasting

Paper Structure
Title 题目

An effective title should... 好的题目应该

- Answer the reader's question: *"Is this article relevant to me?"* 回答读者问题 "这篇文章与我相关吗？"

- Grab the reader's attention 抓住读者兴趣

- Describe the content of a paper using the fewest possible words 简洁描述文章内容

  - Is crisp, concise 简洁
  - Uses keywords 使用关键词
  - Avoids jargon 避免行业术语

Good Title

VS.

Bad Title

IEEE
Advancing Technology
for Humanity

Paper Structure
Abstract 文摘

A "stand alone" condensed version of the article 文章的浓缩版

•No more than 250 words; 不超过250字

•written in the past tense 以过去式写作

•Uses keywords and index terms 使用关键词和索引词

What you did

Why you did it

How the results were useful, important & move the field forward

Why they're useful & important & move the field forward

IEEE
Advancing Technology
for Humanity

Good vs. Bad Abstract
好文摘/坏文摘

The objective of this paper was to propose a human expert-based approach to electrical peak demand management. The proposed approach helped to allocate demand curtailments (MW) among distribution substations (DS) or feeders in an electric utility service area based on requirements of the central load dispatch center. Demand curtailment allocation was quantified taking into account demand response (DR) potential and load curtailment priority of each DS, which can be determined using DS loading level, capacity of each DS, customer types (residential/commercial) and load categories (deployable, interruptible or critical). Analytic Hierarchy Process (AHP) was used to model a complex decision-making process according to both expert inputs and objective parameters. Simulation case studies were conducted to demonstrate how the proposed approach can be implemented to perform DR using real-world data from an electric utility. Simulation results demonstrated that the proposed approach is capable of achieving realistic demand curtailment allocations among different DSs to meet the peak load reduction requirements at the utility level.

Vs

This paper presents and assesses a framework for an engineering capstone design program. **We explain** how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. **Next, we describe** a way to administer and execute the capstone design experience including design workshops and lead engineers. **We describe the importance** in assessing the capstone design experience and report recent assessment results of our framework. **We comment** specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

问题所在:
First person, present tense 第一人称，现在时
No actual results, only describes the organization of the paper
没有展示实际结果，只是描述文章结构

Advancing Technology
for Humanity

Paper Structure
Keywords 关键字

Use in the Title and Abstract for enhanced Search Engine Optimization 用在题目和文摘中，以提审检索引擎精度

Logical

Appropriate

Applicable

Specific

Searchable
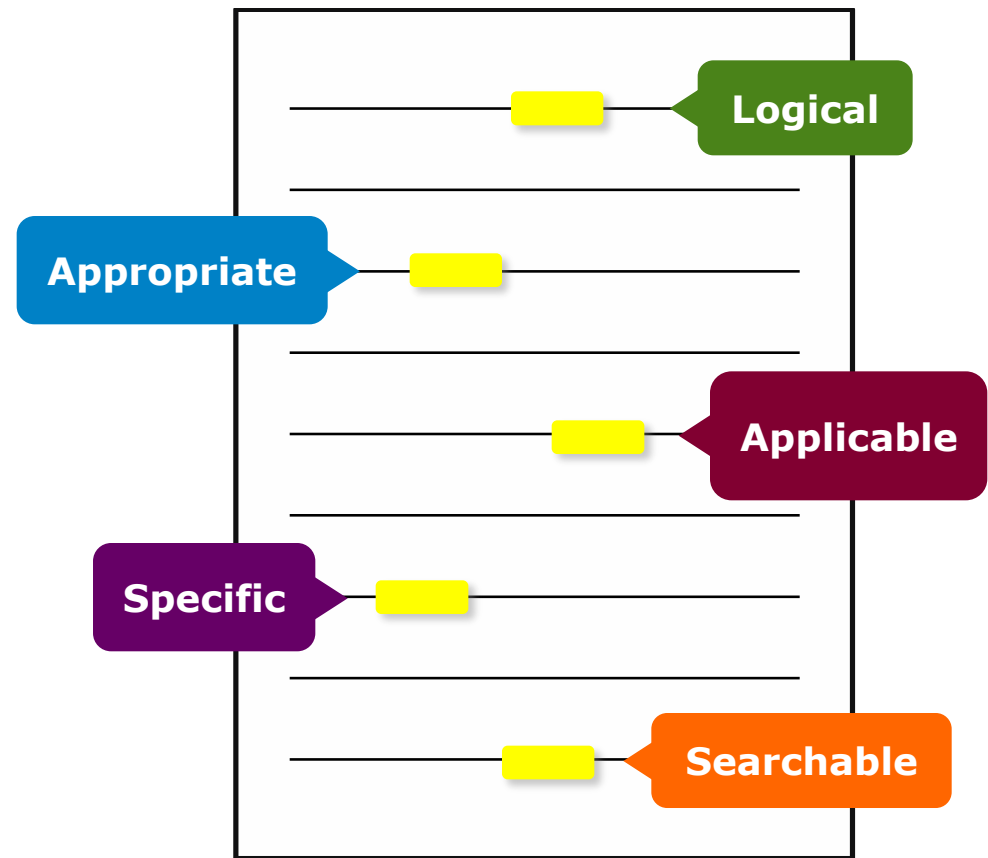
Paper Structure
Introduction 引言

- A description of the problem you researched 研究问题描述
- It should move step by step through: 按照以下步骤

| Generally known information about the topic | Prior studies' historical context to your research | Your hypothesis and an overview of the results | How the article is organized |
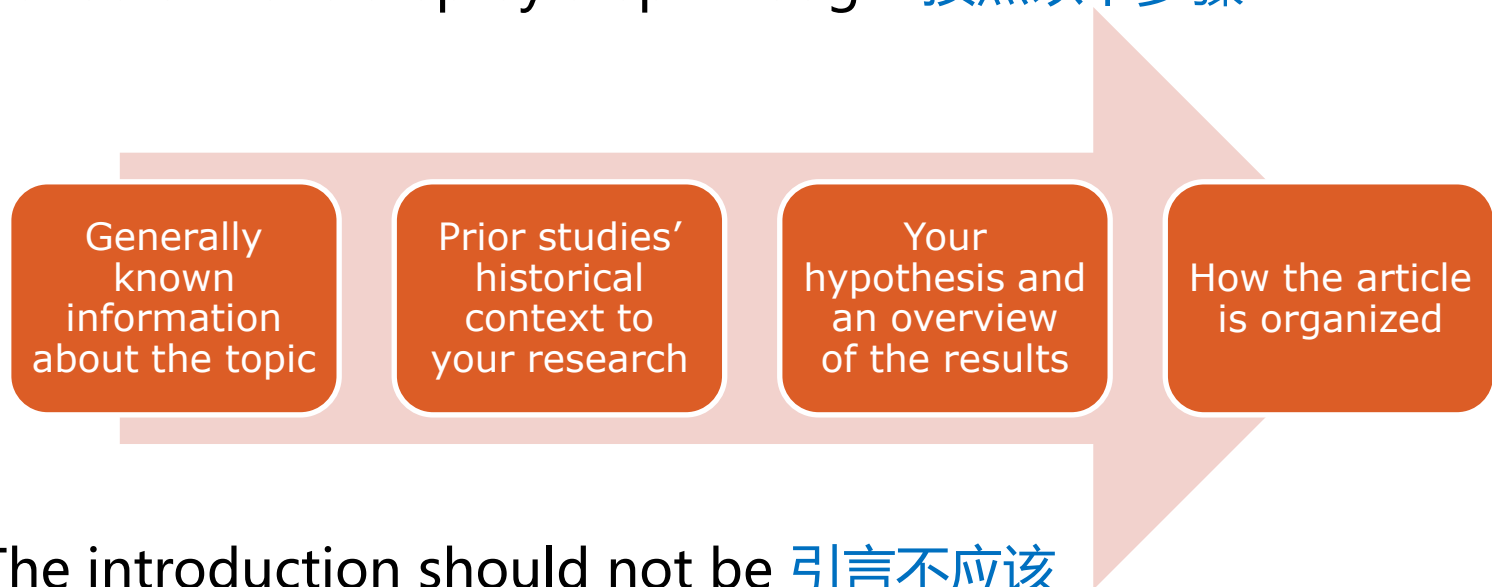
- The introduction should not be 引言不应该
  - Too broad or vague 太宽泛或太模糊
  - More then 2 pages 超过2页

Paper Structure
Methodology 方法

- Problem formulation and the processes used to solve the problem, prove or disprove the hypothesis 问题构想以及解决问题，证实或否证假想的过程

- Use illustrations to clarify ideas, support conclusions: 使用图解阐释想法并支持结论

Tables 表格
Present representative data or when exact values are important to show

Figures 图解
Quickly show ideas/conclusions that would require detailed explanations

Fig. A

Graphs 图表
Show relationships between data points or trends in data

◆IEEE
Advancing Technology for Humanity

Paper Structure
Results/discussion 结果/讨论

Demonstrate that you solved the problem or made significant advances
证明你解决问题或作出重大贡献

Results: Summarized Data 结果：总结数据
- Should be clear and concise 应该清晰简洁
- Use figures or tables with narrative to illustrate findings 使用表格图解配合文字解释结果

Discussion: Interprets the Results 讨论：阐释结果
- Why your research offers a new solution 为什么研究提出了一个新方案
- Acknowledge any limitations 列出研究缺陷

Results

Discussion

Paper Structure
Conclusion 总结

- Explain what the research has achieved

  解释研究达到何种效果

  - As it relates to the problem stated in the Introduction 与引言所阐述的问题关联
  - Revisit the key points in each section 重新回顾每个部分关键点
  - Include a summary of the main findings, important conclusions and implications for the field 包括重要发现、重要结论和推论的总结

- Provide benefits and shortcomings of: 提供以下优缺点

  - The solution presented 展示的解决方案
  - Your research and methodology 你的研究和方法

- Suggest future areas for research 建议未来研究方向

◇IEEE
Advancing Technology
for Humanity

Paper Structure
References 参考文献

- Support and validate the hypothesis your research proves, disproves or resolves 支持和证实你研究所证实、否证或解决的假想

- There is no limit to the number of references 参考文献数量无明确限制
  - But use only those that directly support our work 但是只应列出与研究直接相关的文章

- Ensure proper author attribution 确保作者署名
  - Author name, *article title*, publication name, publisher, year published, volume, chapter and page number
  - IEEE journals generally follow a citation numbering system

Properly cited material

IEEE Author Guide Always Available
IEEE作者指南

- Authors learn how to prepare, write, and submit quality technical articles.

- Can be downloaded

- Includes embedded links to information, forms, etc.

For more information or to download: http://www.ieee.org/publications_standards/publications/authors/publishing_benefits/index.html?WT.mc_id=pb_ben_pub

Advancing Technology for Humanity

Key sites to remember
记住这些重要网站

IEEE Author Tools
http://www.ieee.org/publications_standards/publications/authors/author_tools.html

IEEE Conference Search and Calls for Papers:
http://www.ieee.org/conferences_events/index.html

IEEE Xplore: http://ieeexplore.ieee.org

IEEE Xplore information, training and tools:
http://www.ieee.org/go/clientservices

IEEE Journal Citation reports:
http://www.ieee.org/publications_standards/publications/journmag/journalcitations.html

IEEE
Advancing Technology
for Humanity

数据库登陆:
http://ieeexplore.ieee.org
培训网站:
http://cn.ieee.org/online_t
raining.html

了解更多文献检索和写作辅导建
议请关注微信公众号"学术猫"

有问题请联系
li.q@ieee.org
dan@igroup.com.cn

下载网络课堂PPT，请关注"IEEE Xplore
微服务"，每周一登录公众号，首页回复
"网络课堂"即可获得PPT下载链接

IEEE
Advancing Technology
for Humanity