北京航空航天大学
BEIHANG UNIVERSITY

Scientific Writing & Presentation
（学术论文写作与报告）

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About you and me

About me

- **2001 - 2005**: Northwestern Polytechnical University, Xi'an, China

  Degree: **B.Sc. in Electrical Engineering**

- **2005 - 2008**: Northwestern Polytechnical University, Xi'an, China

  Degree: **M.Sc. in Control Theory**

- **2008 - 2013**: Hamburg University of Technology, Germany

  Degree: **Ph.D. in Aerospace Engineering**

  Research/Teaching on: MCDA, transportation networks

- **2013 - 2015**: German Aerospace Center (DLR), Germany

  Position: **Postdoc**

  Research/Teaching on: Transportation networks

- **Since April 2015**: Beihang University, Beijing, China

  Position: **Associate Professor**

[http://www.ee.buaa.edu.cn/info/1202/22838.htm]

M3Nets (Multi-Modal Mobility Networks)

Our focus is on developing scalable algorithms and analysis techniques for large transportation networks

1) Global Transportation Networks

2) Big Data Management

3) Scalable Network Design

4) Complex Network Resilience

More information can be found here: http://m3nets.de

And you…

About you

- How many are master/phd students?

- Do you have any academic writing or presentation experience?

- What is your future career goal?

- What do you expect from attending this course?

- What else do you want everybody to know?

Course Introduction

- **Content：** Introduction, Writing tools, Paper writing, Thesis writing, Presentation

- **Teach Method：** Teaching + Case study

- **Test and Exam：** Attendance (in-class quiz) 30%, project report 70%

Reference list

- Stanford library card catalog refers to **more than 100** books about technical writing.

- A journal devoted to academic writing.

  - *IEEE Transactions on Professional Communication*

- My advice is **experience.**

Outline

1.1 **What** is scientific writing?

1.2 **Why** it is important?

1.3 **How** to improve it?

1.4 **Where** to publish it?

1.1 What is scientific writing

"In science, the credit goes to the man who convinces the world, not to the man to whom the idea first occurs."

--Sir William Osler, a Canadian physician and professor of medicine, he played a key role in transforming the organization and curriculum of medical education

"Writing is an art. But when it is writing to inform it comes close to being a science as well."

--Robert Gunning, *The Technique of Clear Writing*

1.1 What is scientific writing

1. Academic writing means that the scholars publish and shares their research results in some books, journals, and conferences.

Earlier time

Now

2. The earliest journal: *Philosophical Transactions of the Royal Society,*

17ᵗʰ century.

1.1 What is scientific writing

3. Categories:

- **Books** (too slow and too long)

- **Journals** (quick and important)

- **Conferences** (quicker)

- **Thesis** (summary of degree study)

738 pages, 14 chapters

IEEE Journal
15 pages, 7 sections

IEEE ICCV
9 pages, 5 sections

Thesis for Imperial College London
138 pages, 6 chapters

1.1 What is scientific writing

4. Index

A citation index is a kind of bibliographic **database**, an index of citations between publications, allowing the user to easily establish which later documents cite which earlier documents.

- **SCI** (web of knowledge)

- **EI** (Engineering Index)

- **ISI Proceeding** (web of knowledge)

1.1 What is scientific writing

1	ACM [全文]
2	ACS [全文]
3	AIAA Electronic Library [全文]
4	APS [全文]
5	ASME [全文]
6	ASP [全文]
7	ASTM [全文]
8	Aviation/Aerospace Resources(NASA、AD、PB、DE) [全文]
9	Begell [全文,电子图书]
10	Cambridge [全文]
11	CRC-MechanicalENGINEERINGnetBASE [全文]
12	EBSCOhost(ASP、BSP、ERIC...) [全文]
13	Elsevier ScienceDirect [全文]
14	Emerald [全文]
15	EV2(Ei Compendex) [文摘]
16	Fortune [全文]
17	Frontiers in China [全文]
18	HeinOnline [全文]
19	IEEE/IEE Electronic Library [全文]
20	IMechE [全文]
21	Intel Technology Journal [全文]

1. Association for Computing Machinery

2. A website operated by Elsevier.

3. Institute of Electrical and Electronics
 Engineers

1.1 What is scientific writing

22	IOP [全文]
23	Journal Storage [全文]
24	LexisNexis [全文]
25	Maney Publishing Online Journals [全文]
26	MathScinet [全文]
27	MIT [全文]
28	Nature [全文]
29	NetLibrary [全文]
30	NRC Online Journals [全文]
31	OSA [全文]
32	Oxford Scholarship Online [全文]
33	PQDT [全文]
34	ProQuest(原CSA平台) [文摘]
35	RSC [全文]
36	SAGE Deep Backfiles [全文]
37	Science Online [全文]
38	Scientific Research Publishing [全文]
39	SciFinder [文摘]
40	Scitation(AIP、ASME) [全文]
41	Scopus [文摘]
42	SPIE [全文]
43	SpringerLink [全文]
44	Taylor & Francis Journals [全文]
45	The Royal Society Online Journals [全文]
46	Web of Knowledge [文摘]

4. The world's most cited scientific journal

5. Springer provides its e-books and journals.

6. The famous SCI and ISI proceeding.

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1.1 What is scientific writing?

Scientific writing follows a **rigid** structure – a format developed over hundreds of years

Consequently, a paper can be read at **several levels**:

➢ Some people just will refer to the title

➢ Others may read only the title and abstract

➢ Others will read the paper for a deeper understanding

1.1 What is scientific writing?

A scientific article as a critical argument

➢ Statement of problem; posing a question

➢ Presentation of evidence

➢ Assessment of the validity of the evidence in the face of ..

    ➢ strengths/weaknesses

    ➢ other evidence

➢ Conclusions

1.1 What is scientific writing?

The process of scientific writing

➢ Create an outline first

➢ Plan on multiple drafts:

    ➢ Filename with dates

    ➢ One filename written over with new draft

➢ Tables/figures early: prompt more analysis

➢ Deadlines for you and coauthors

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?

- Describes the paper's content clearly and precisely including keywords
- It is the advertisement for the article
- Do not use abbreviations and jargon
- Search engines/indexing databases depend on the accuracy of the title - since they use the keywords to identify relevant articles

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?
Abstract	What did I do in a nutshell?

- **Briefly** summarize (often 150 words) - the problem, the method, the results, and the conclusions
- The reader can decide whether or not to read the whole article
- Together, the title and the abstract should stand on their own
- Many authors write the abstract **last** so that it accurately reflects the content of the paper

[http://research.mlanet.org/structured_abstract.html]

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?
Abstract	What did I do in a nutshell?
Introduction	What is the problem?

- Clearly state the:
    - Problem being investigated
    - Background that explains the problem
    - Reasons for conducting the research
- Summarize relevant research
- State how your work differs from published work
- Identify the questions you are answering
- Explain what other findings, if any, you are challenging or extending

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?
Abstract	What did I do in a nutshell?
Introduction	What is the problem?
Literature Review	What is the state-of-the-art?

- What has been done and what can you say that's new?
- Be thorough in your search: a high sensitivity/low specificity search.

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?
Abstract	What did I do in a nutshell?
Introduction	What is the problem?
Literature Review	What is the state-of-the-art?
Methodology	How did I solve the problem?

- Provide the reader enough details so they can understand/replicate your research
- Explain how you studied the problem, identify the procedures you followed, and order these chronologically where possible
- Explain new methodology in detail; otherwise name the method and cite the previously published work
- Be precise in describing experiments and include potential bias or design limits

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?
Abstract	What did I do in a nutshell?
Introduction	What is the problem?
Literature Review	What is the state-of-the-art?
Methodology	How did I solve the problem?
Results & Discussion	What did I find out? & What does it mean?

- Objectively present your findings, and explain what was found
- Show that your new results are contributing to the body of scientific knowledge
- Follow a logical sequence based on the tables and figures presenting the findings to answer the question or hypothesis
- Describe what your results mean in context of what was already known about the subject
- Indicate how the results relate to expectations and to the literature previously cited

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?
Abstract	What did I do in a nutshell?
Introduction	What is the problem?
Literature Review	What is the state-of-the-art?
Methodology	How did I solve the problem?
Results & Discussion	What did I find out? & What does it mean?
Conclusions	Recap what did I do in a nutshell?

- Explain how the research has moved the body of scientific knowledge forward
- Do not extend your conclusions beyond what is directly supported by your results - avoid undue speculation
- Outline the next steps for further study

1.1 What is scientific writing?

Basic structure of journal-style scientific papers

Paper Sections	Experimental Process
Title & Authors	Who did the work?
Abstract	What did I do in a nutshell?
Introduction	What is the problem?
Literature Review	What is the state-of-the-art?
Methodology	How did I solve the problem?
Results & Discussion	What did I find out? & What does it mean?
Conclusions	Recap what did I do in a nutshell?
Acknowledgments	Who helped me out?
References	Whose work did I refer to?
Appendix	Extra information

http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWsections.html

About references

➢ Whenever you draw upon previously published work, you **must** acknowledge the source

➢ Any information not from your experiment and not 'common knowledge' should be recognized by a citation

➢ How references are presented varies considerably - refer to notes for authors for the specific journal

➢ Avoid references that are difficult to find

➢ Avoid listing related references that were not important to the study

About references

- Use a computerized bibliographic program.

- Follow journal guidelines (may request alphabetical listing or order of appearance in the text).

- Follow standard abbreviations (can be found online).

- Some journals limit number of references allowed.

About authors listing

➤ ONLY include those who have made an intellectual contribution to the research

➤ OR those who will publicly defend the data and conclusions, and who have approved the final version

➤ Order of the names of the authors can vary from discipline to discipline

　➤ In some fields, the corresponding author's name appears first

➤ Establishes responsibilities in paper writing

　➤ Avoids hurt feelings

About acknowledgements

- Funding sources

- Contributors who did not get authorship (e.g. offered materials, advice or consultation that was not significant enough to merit authorship).

1.1 What is scientific writing?

5. An example (one journal paper)

Subjective-driven Complexity Control Approach for HEVC → 1. Title

Xin Deng, *Student Member, IEEE*, Mai Xu, *Member, IEEE*, Lai Jiang, Xiaoyan Sun, *Senior Member, IEEE*, and Zulin Wang, *Member, IEEE* → 2. Authors

Abstract—The latest High Efficiency Video Coding (HEVC) standard significantly increases the encoding complexity for improving its coding efficiency, compared to the preceding H.264/AVC standard. In this paper, we present a novel subjective-driven complexity control (SCC) approach to reduce and control the encoding complexity of HEVC. Through reasonably adjusting the maximum depth of each largest coding unit (LCU), the encoding complexity can be reduced to a target level with minimal visual distortion. Specifically, the maximum depths of different LCUs can be varied through solving the proposed optimization formulation of complexity control, based on two explored relationships: the relationship between the maximum depth and encoding complexity, and the relationship between the maximum depth and visual distortion. Besides, the subjective visual quality is favored with a novel subjective-driven constraint imposed in the formulation, on the basis of a visual attention model. Finally, the experimental results show that our approach can achieve a wide range of encoding complexity control (as low as 20%) for HEVC, with the smallest complexity bias being 0.2%. Meanwhile, our SCC approach outperforms other two state-of-the-art complexity control approaches, in terms of both control accuracy and visual quality. → 3. Abstract

Index Terms—Complexity control, maximum depth, HEVC. → 4. Index

I. INTRODUCTION → 5. Introduction (background/motivation/contributions)

RECENTLY, high-resolution videos and large-sized screens are flooding into the daily life of humans, bringing about perfect visual enjoyment but at the same time huge challenge on communication bandwidth. It is labored for the once-booming H.264/AVC to complete this challenge with its available coding efficiency, thus motivating the birth of a new video coding standard, called High Efficiency Video Coding (HEVC). The draft of HEVC was issued in January, 2013, and many works have been done to constantly improve its coding efficiency.

Compared to H.264/AVC, HEVC can save bit rates by about 50% with comparable video quality [1]. This eminent coding efficiency mostly benefits from the new coding tree unit (C-TU) block partitioning structure, diverse intra/inter prediction modes, and other cutting-edge techniques [2] [3]. Along with the remarkable performance of coding efficiency, the encoding complexity of HEVC increases dramatically, ranging from

9% to 502% higher than H.264/AVC [4]. However, most of multimedia-ready devices, such as portable computers, pads, and smartphones, do not have the ability to sustain such massive complexity due to their limited computational powers. Therefore, the development and research on video coding should not only fasten on enhancing the coding efficiency, but also consider the computational complexity.

Complexity control is rather important for HEVC. On one hand, with the continuous demand for videos at higher resolutions, the complexity of video coding tremendously increases from one standard to the next, with HEVC climbing the highest so far. On the other hand, the amount of multimedia devices has been growing explosively from 2007 onwards (first generation of iPhone appeared). More and more portable devices featured by encoding and decoding videos are favored by consumers, such as smartphones, pads, carPCs, and other mobile devices. However, their computational powers vary from one device to another. Thus, for better development and implementation of HEVC on various platforms with disparate computing capability, it is necessary to develop an efficient complexity control approach for HEVC.

For the past decades, extensive work has been done to control the encoding complexity for different video coding standards [5]–[7]. More specifically, for H.263, Ismaeil *et al.* [5] evaluated the complexity of four most time-consuming components in encoding process, including the motion estimation, discrete cosine transform (DCT), quantization, and mode selection. Each of the four components can be configured to reduce the encoding complexity. By globally assembling the four components with optimal configurations, complexity control can be achieved. Afterwards, dealing with the macroblock in H.264/AVC, Kannangara *et al.* [6] proposed an early skip macroblock mode prediction algorithm on the basis of a Bayesian framework. Through reasonably modifying the threshold for early skip, the actual complexity of [6] can be reduced to a target complexity. For HEVC, complexity control mechanism may be related to the new CTU partitioning scheme. For example, Corrêa *et al.* [7] explored the relationship between the coding unit (CU) depth and coding complexity, and then they proposed to constrain the maximum LCU depths of certain frames the same as those of the previous frames, rather than exhaustive rate distortion optimization (RDO) search. By means of adjusting the number of those constrained frames, the encoding complexity can match the target complexity. However, the above methods do not take

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1.1 What is scientific writing?

6. Related work (where is the state-of-the-art)

1.1 What is scientific writing?

are still other components in HEVC affecting the encoding complexity, such as in-loop filtering, and multi-directional intra predictions. From these aspects, [29]–[31] provide several methods to reduce the encoding complexity of HEVC.

B. Encoding complexity control work

Benefitting from the above encoding complexity reduction methods, it is feasible to achieve complexity control for video coding. There exist lots of complexity control approaches, which can be classified into the following three main categories.

The first complexity control philosophy stems from the prevailing complexity allocation thought. Given a target complexity, through rational allocation of complexity resources, the actual running complexity can approach the target, while keeping RD performance well. Approaches in [32], [33] were proposed for H.264/AVC to allocate the encoding complexity in terms of the distortion (e.g., sum of absolute difference, SAD) of each macroblock, in which higher distortion corresponds to more complexity resources. A rate-control-like procedure was developed in [34] for complexity control of H.264/AVC. It employed a novel lagrange complexity-rate-distortion (C-R-D) cost model to make a tradeoff between the video quality and complexity cost. Unlike the aforementioned complexity allocation approaches, our SCC approach distributes the complexity resources according to the pixel-wise weights for visual saliency. This way, the subjective visual quality can be favored.

The heuristic of the second complexity control category is exploiting several encoding parameters to make complexity configurable. Typically, [35] proposed to manage the complexity of H.264/AVC through adjusting parameters to control ME and MD processes, based on complexity configurable motion estimation (CAME) and complexity configurable mode decision (CAMD) algorithms. Most recently, Zhao et al. [36] proposed a flexible mode selection approach for HEVC using a global complexity control factor. Through a hierarchical complexity allocation scheme, the overall RD performance can be maximized. However, it is hard to reach a specific target complexity, as only a few parameters can be configured. In this paper, we propose a complexity control approach, in which the complexity is controlled through reasonably varying the maximum depth of each LCU. Due to the large number of LCUs in each frame, the freedom of degree for complexity control is large such that the encoding complexity can be reduced to a specific target.

The last kind of approaches leverage various early termi-nation algorithms to control complexity. Corrêa et al. [7] achieved HEVC complexity control by means of predicting the maximum depths of LCUs. In this approach, frames are divided into two categories: unconstrained frames (Fu) and constrained frames (Fc). The maximum depths of LCUs in Fc are early determined, the same as the maximum depths in its previous Fu frame, thus decreasing the RDO process complexity to a specific target. Ren et al. [37] proposed to make use of spatial and temporal information to early terminate the MD process for H.264/AVC complexity control. Through setting different early terminate thresholds, the encoding complexity

can be reduced to different levels. In this paper, by adjusting the maximum depths of LCUs, we can early terminate the RDO process for selecting the optimal CU sizes of certain LCUs. This way, the encoding complexity can be saved and meanwhile controlled. The advantage of our approach is that the distortion optimization is considered, when decreasing the encoding complexity.

Actually, there are few complexity control approaches proposed for HEVC, since this new standard was just launched not so long ago. Furthermore, to our best knowledge, the existing approaches do not take into account subjective quality when controlling the encoding complexity for HEVC. In this paper, we propose an SCC approach to precisely control the encoding complexity of HEVC. By utilizing the bottom-up/top-down visual attention model, our approach can not only control encoding complexity with minimal visual distortion, but also preserve subjective quality well.

III. VISUAL ATTENTION MODEL

→ 7. Preliminary (the basis)

This section describes the visual attention model, as the foundation of the proposed SCC approach. According to the HVS, there exists much perceptual redundancy that can be further exploited to improve coding efficiency without significant perceived quality degradation. For instance, when a person looks at a video, he/she may not pay attention to the whole scene. In other words, a small region around a point of fixation is concerned most [38], while the peripheral region is captured at low resolution. In light of this phenomenon, the computational complexity can be saved in our SCC approach via decreasing the visual quality in the peripheral region with high priority.

From now on, we mainly focus on the visual attention model, which predicts where human looks at a video, as the preliminary of the proposed SCC approach. To predict human visual attention, both bottom-up and top-down models can be utilized for yielding the pixel-wise weight map of each video frame, reflecting the saliency values of different pixels. Specifically, in light of study on the HVS, several low level features have been developed for the bottom-up model of saliency detection. A representative bottom-up model is [9], in which the low level features of color, intensity, and motion are integrated to yield saliency maps of videos. However, for the conversational videos, face is a consensus top-down visual cue for saliency detection. As such, in [10] the face is used as a high level feature for yielding the saliency maps of video frames. In this paper, we therefore apply bottom-up [9] and top-down [10] models in our SCC approach to provide the weights of saliency, for encoding generic and conversational videos, respectively.

For the bottom-up visual attention model, we apply phase spectrum of quaternion Fourier transform (PQFT) algorithm [9] to calculate the weight maps for all frames in a video, due to its high accuracy and low complexity. For example, [9] has shown that the PQFT algorithm consumes less than 1 ms for computing the weight map of a 800×600 video frame on a Windows PC with C/C++ platform. Note that the videos may be down-sampled for detecting saliency with the

1.1 What is scientific writing?

8. The proposed method (details)

1.1 What is scientific writing?

9. Experimental results (details)

1.1 What is scientific writing?

(a) *Racehorses* our approach at 300 kbps

(b) *Racehorses* with [7] at 300 kbps

(c) *Racehorses* with [23] at 300 kbps

Fig. 9. The 32-*th* frames of sequence *Racehorses* compressed by our, [7] and [23] approaches, at 60% encoding complexity.

(a) *BQMall* with our approach at 500 kbps.

(b) *BQMall* with [7] at 500 kbps.

(c) *BQMall* with [23] at 500 kbps.

Fig. 10. The 54-*th* frames of sequence *BQMall* compressed by our, [7] and [23] approaches, at 60% encoding complexity.

different encoding complexity, using the method in [48]. Table IX reports the results of BD-Rate and BD-PSNR averaged over all six test sequences. Since [7] and [23] cannot control the complexity to 20%, their corresponding BD-Rate and BD-PSNR results at 20% are not reported. It can be observed from Table IX that compared with [7] and [23], our approach can achieve higher Y-PSNRs at the same bit rates, or save some bit rates at the same distortion. Besides, our approach, especially at low complexity, can significantly improve the control accuracy over [7] and [23].

VI. CONCLUSIONS

→ **10. Conclusion (brief summary)**

In this paper, we proposed a novel approach, namely SCC, for encoding complexity control in HEVC. It was argued that the maximum depth of each LCU exerts an important effect on the encoding complexity of HEVC. Therefore, with numerical analysis, we first investigated the relationship between the maximum depth and encoding complexity. The reduced maximum depth can decrease encoding complexity, but at the cost of visual distortion. Thus, we further explored the influence of maximum depth on visual distortion. Accordingly, we proposed an optimization formulation to control the encoding complexity of HEVC with minimal visual distortion. Based on the visual attention model, this formulation also favors subjective visual quality, by allocating more complexity resources to LCUs with greater weights. The experimental results verify the effectiveness of our approach. On one hand, in comparison with other two approaches, our approach is capable of steadily controlling the encoding complexity of HEVC with higher accuracy. On the other hand, our approach can offer superior visual quality, over other two state-of-the-art approaches.

There may exist three directions for the future work. (1) Our work in this paper only considers two simple visual attention models. Currently, with the advances in the area of visual attention modeling, much work related to the SC-C approach remains to be developed for further improving subjective visual quality. For example, one future goal of our SCC approach should include the integration of bottom-up and top-down visual attention models to provide more reasonable weight maps. (2) Our work in its present form only focuses on allocating complexity resources to LCUs. Yet, there is no complexity budget scheme to adjust the complexity allocation in frame level, which may further improve the accuracy of complexity control. This provides a promising trend for the future work. (3) Many fast encoding and early termination methods are proposed for HEVC. It is quite an interesting future work to incorporate our approach with those fast encoding methods, to further decrease and control the encoding complexity of HEVC.

APPENDIX

→ **11. Appendix (not important but useful)**

A. *Proof of Lemma 1.*

The one-dimensional optimal fitting x_0 for data group $\{\Delta D_k(0)\}_{k=1}^{K}$ can be calculated via solving

$$\min_{x_0} \sum_{k=1}^{K} (\Delta D_k(0) - x_0)^2, \qquad (18)$$

1.1 What is scientific writing?

12. Reference (cite others' work)

1.1 What is scientific writing?

- **Technical Report** is **a major form of communication in Engineering**, it is used for reporting the results of your research, investigations, and design projects

- Technical reports are often read by the lecturers or tutors, in order to assess the students' mastery of the subjects and the ability to apply their knowledge to a practical task

PR Report Final-Introduction to General Engineering

(School of General Engineering)

Team Members	A1
	Yangjie Cui
	Yongcheng Gao
	Haobo Shen
	Jingwen Zhang
	Tianyu Zheng
Contact Person	Jingwen Zhang
Supervisor	Xiaoqian Sun

Introduction to General Engineering I/II

Project Requirement Assessment

Team Number: A1   Project Title: Design of a Portable Ramp for Wheelchair/Scooter

Student Name	Student Number	Supervisor Grade /10	Client Grade /5	Total /15
Yangjie Cui	17351004	7		
Yongcheng Gao	17351037	7		
Haobo Shen	17351049	7		
Jingwen Zhang	17351032	8		
Tianyu Zheng	17351028	7		

Strengths:

Good teamwork. Communication between team members.

Suggestions for Improvement:

The understanding of the PR of the ramp is not completely clear.

English writing needs to be improved.

1.1 What is scientific writing?

Basic structure of a technical report:

Report Sections	Experimental Process
Title page	Who did the work?

1.1 What is scientific writing?

Basic structure of a technical report:

Report Sections	Experimental Process
Title page	Who did the work?
Summary	What did I do in a nutshell?

1.1 What is scientific writing?

Basic structure of a technical report:

Report Sections	Experimental Process
Title page	Who did the work?
Summary	What did I do in a nutshell?
Table of Contents	What are numbered sections?

1.1 What is scientific writing?

Basic structure of a technical report:

Report Sections	Experimental Process
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Table of Contents	What are numbered sections?
Introduction	What is the problem?

1.1 What is scientific writing?

Basic structure of a technical report:

Report Sections	Experimental Process
Title page	Who did the work?
Summary	What did I do in a nutshell?
Table of Contents	What are numbered sections?
Introduction	What is the problem?
The body of the report	How did I solve the problem? What did I find out? What does it mean?

1.1 What is scientific writing?

Basic structure of a technical report:

Report Sections	Experimental Process
Title page	Who did the work?
Summary	What did I do in a nutshell?
Table of Contents	What are numbered sections?
Introduction	What is the problem?
The body of the report	How did I solve the problem? What did I find out? What does it mean?
Conclusions	Recap what did I do?

1.1 What is scientific writing?

Basic structure of a technical report:

Report Sections	Experimental Process
Title page	Who did the work?
Summary	What did I do in a nutshell?
Table of Contents	What are numbered sections?
Introduction	What is the problem?
The body of the report	How did I solve the problem? What did I find out? What does it mean?
Conclusions	Recap what did I do?
Acknowledgments	Who helped me out?
References	Whose work did I refer to?
Appendix	Extra information

1.1 What is scientific writing?

An example (one technical report):

1. Title page

1.1 What is scientific writing?

An example (one technical report):

Summary

  We know the society is going aging. Influenced by the aging of society, the number of the elderly who lose the ability to walk will increase. According to statistics of a research, China has had the most electric vehicle users in the world for more than 20 years. Their travel over barriers is a difficulty. And they hope to overcome this problem. By our questionnaires, the majority of people call for a cheaper and more portable product.

  This product's functions are getting across a stair conveniently in hospital or outside for the old or the disabled who need a wheelchair and people who use scooters. Indeed, there are its constrains by now. But I think people can come over them during research and finding.

To make a good product, its size, using time, cost and load-bearing are needed to be considered. And to let it adapt the market, we should take clients, users and manufacturers in consideration. But no matter how difficult it is, we will insist on our design philosophy: The quality of people's life must be improved. The environment of our life should be protected.

Key words:

Portable ramp, background, function, objection, market, quality of life, the environment

→ **2. Summary**

1

1.1 What is scientific writing?

An example (one technical report):

Table of content $\longrightarrow$ **3. Table of Contents**

2

1.1 What is scientific writing?

An example (one technical report):

**4. Introduction
(background/motivation)**

1.1 What is scientific writing?

An example (one technical report):

5. The body of the report (Middle sections with numbered headings)

1.1 What is scientific writing?

An example (one technical report):

11.Project Management

This is the over view scheduled of our project

Week of	Scheduled activities	Deadline
23-Oct-17	Final PS	26-Oct-17
04-Dec-17	Final PR	07-Dec-17
18-Dec-17	Pre-DP	21-Dec-17
23-Apr-18 to 19-May-18	DR and Presentations	26-Apr-18 17-May-18
04-June-18	Draft Poster	07-June-18
18-June-18	Final Poster	20-June-18
18-June-18	GEDP Showcase	21-June-18
25-June-18	FDR and Final PD	28-June-18

12. Conclusion: → **6. Conclusions**

According to the background, the demand of ramp is going up and accelerate and a portable, light-weight, inexpensive ramp. For our main users are wheelchair and scooter users, we need to achieve some goals.

As the data from the questionnaire, our country has a large number of wheelchair and scooter users. But there is no proper ramp for them to carry to cross the obstacles or going up the steps. Our objectives should include light weight, portable size, enough bearing weight, convenient use, anti-skid surface, affordable price, good quality and durability. It will be used mainly in the hospital or outside to get across a stair conveniently without carrying the wheelchair onto the step crudely.

As for the specific requirements, we will consider four main parts. Because safety is the most important priority, the ramp should not have sharp edges. And the ramp should have anti-slippery surface, proper slope degree, less power to use, good material and vertical panels. Secondly, the ramp should work well under all weather conditions and be well within one year at least. For the maintenance, the parts should be easy to find in the market and replace by users. To make it more comfortable when using, some buffers are necessary. Last but not least, the size and weight should be portable.

For the wheelchairs, it is better to know beforehand if there is someone to push the wheelchair or they need to push the wheels by themselves. The reachable range of the wheelchairs in all directions should be considered as well. Some essential but weak parts should be back up with the sales of products. Last, the ramp will be friendly to the environment and traffic.

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1.1 What is scientific writing?

An example (one technical report):

Special thanks

Name	What they have helped with
Sun Xiaoqian	Examine the PR we have written; Give advice on how to write PS and PR
Fu Zunru	Give advice on how to write PS and PR

→ **7. Acknowledgement**

13. List of Reference

[1] About ageing populations:
http://www.sohu.com/a/116052438_465895
http://www.chyxx.com/industry/201510/352441.html

[2] About scooter:
http://baijiahao.baidu.com/s?id=1553656030627002&wfr=spider&for=pc

[3] About the disabled:
http://www.chyxx.com/industry/201603/396193.html
http://xueshu.baidu.com/s?wd=paperuri:(f032bd9ce74aba05e6b4d67849ddcaba)&filter=sc_long_sign&sc_ks_para=q
%3D%E5%85%A8%E5%9B%BD%E6%AE%8B%E7%96%BE%E4%BA%BA%E4%BA%BA%E5%8F%A3%E5%
9F%BA%E7%A1%80%E6%95%B0%E6%8D%AE%E5%BA%93%E6%95%B0%E6%8D%AE%E5%88%86%E6%
9F%90%2A&tn=SE_baiduxueshu_c1gjeuha&ie=utf-8&sc_us=18061463986851175542

Low on the quality of products of China:
https://baike.baidu.com/item/%E4%B8%AD%E5%8D%8F%E4%BA%BA%E6%B0%91%E5%85%B1%E5%92%8C
%E5%9B%BD%E4%BA%A7%E5%93%81%E8%B4%A8%E9%87%8F%E6%B3%95/5028597?fr=aladdin

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→ **8. References**

1.1 What is scientific writing?

An example (one technical report):

Questionnaires on Portable Ramp

1. Means of transportation that need the ramp ?   [Single topic selection]

Options	Summary	Percentage
Wheelchair	44	75.86%
Electric bike	11	18.97%
Motorbike	3	5.17%
Effective respondents	58	

2.The formal height of obstacles ?   [Single topic selection]

Options	Summary	Percentage
<10cm	7	12.07%
10cm~20cm	34	58.62%
20cm~30cm	12	20.69%
>30cm	5	8.62%
Effective respondents	58	

2.Most people think the formal height of obstacles are lower than 30cm.

3. Acceptable weight ?   [Single topic selection]

Options	Summary	Percentage
0.5kg	10	17.24%
1kg	13	22.41%
2kg	15	25.86%
3kg	10	17.24%
>5kg	10	17.24%

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1.1 What is scientific writing?

Basic structure comparison:

Journal paper vs. Technical report

1.1 What is scientific writing?

Paper Sections	Experimental Process	Report Sections	
Title & Authors	Who did the work?	**Title page**	✓
Abstract	What did I do in a nutshell?	**Summary**	✓
-	What are the numbered sections?	**Table of Contents**	
Introduction	What is the problem?	**Introduction**	✓
Methodology	How did I solve the problem?	**The body of the report**	
Results & Discussion	What did I find out? What does it mean?		✓
Conclusions	Recap what did I do?	**Conclusions**	✓
Acknowledgments	Who helped me out?	**Acknowledgments**	✓
References	Whose work did I refer to?	**References**	✓
Appendix	Extra information	**Appendix**	✓

There are high structural similarities between journal paper and technical report; good scientific writing techniques can be shared.

1.1 What is scientific writing?

Progress Report is used for reporting the results of your research, investigations, and design projects in a certain period of time

- ➢ Daily report
- ➢ Weekly report
- ➢ Monthly report
- ➢ Term report
- ➢ Annual report
- ➢ etc.

1.1 What is scientific writing?

Progress Report should answer the following questions:

➢ What is your research progress and what problems are still open in the current stage?

➢ What is your plan to solve these problems in order to proceed further?

◆ Literature review

◆ Mathematical modelling

◆ Experimental design

◆ Manuscript writing

◆ Others

1.1 What is scientific writing?

Progress Report should be submitted on time, according to the requirements of your supervisor

o   You should be able to finish your task before the deadline

o   It is a good practice for you to learn to avoid procrastination

o   It is beneficial to summarize your research achievements regularly, so that it is easier to write the full manuscript in the future

o   It is good to be aware of the research status of your peers in the same group

1.1 What is scientific writing?

There are different types of scientific writing:

- Theoretical work

- Experimental work

- Observation work

- Review work

- **Theoretical + application work**

→The most common type

Old methods + Old research questions

Old methods + New research questions

New methods + Old research questions

New methods + New research questions

1.1 What is scientific writing?

Good practice of scientific writing established by the Royal Society

- The importance of plain and accurate description, rather than rhetorical flourishes

- The importance of not boring reader

https://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/writing-scientific-papers-14239285

1.1 What is scientific writing?

What makes good writing?

Good writing communicates an idea clearly and effectively.

Good writing is elegant and stylish.

- Having something to say.
- Logical and clear thinking.
- A few simple, learnable rules of style

Take home message: Clear, effective writing can be learned!

1.1 What is scientific writing?

Good scientific writing should be:

✓ **Clear**	Avoid unnecessary details
✓ **Simple**	Avoid vague or complicated sentences
✓ **Fair/Neutral**	Avoid making assumptions or unproven statements
✓ **Structured logically**	Avoid disordered or unclear headings
✓ **Accurate**	Avoid vague and ambiguous language
✓ **Objective**	Avoid lacking of evidence or not acknowledging others' work

[https://www2.le.ac.uk/offices/ld/resources/writing/writing-resources/science]

Outline

1.2 Why scientific writing is important

1. Publish or Perish

Perish: pass from physical life and lose all bodily attributes and functions necessary to sustain life.

Publish or Perish

"It's publish or perish, and he hasn't published."

"*I don't mind your thinking slowly. I mind your publishing faster than you can think.*"
(The Nobel Laureates physicist Wolfgang Pauli)

Try to make other scholars know
what you have done in the related filed.

1.2 Why scientific writing is important

1. Publish or Perish

There are three necessary steps in useful research: the first to begin it, the second to end it and the third to publish it.

—— Michael Faraday

Michael Faraday

Michael Faraday, 1842

Michael Faraday (22 September 1791 – 25 August 1867) was an English scientist who contributed to the fields of electromagnetism and electrochemistry. His main discoveries include those of electromagnetic induction, diamagnetism and electrolysis.

1.2 Why scientific writing is important

2. Graduation, promotion, academic assessment

- **Graduation**: the **thesis** is required for bachelor, master and doctor degree. For doctor degree, lots of universities have regulation on the minimum number of published papers.

- **Promotion**: the papers published in the related fields are **the key** to get promoted (e.g., from assistant professors to associate professors.)

- **Academic assessment**: almost all **university rankings** take into account the published papers.

"Publish or Perish!" – A Call to Action

1.2 Why scientific writing is important

3. Interests

- Paper publishing is a kind of off-line conversation in the scientific fields. It enables to exchange your idea with each other.

- There is a **no way to be better** than paper publishing in exchanging your idea and research results in the research communities.

- Sometimes, you can exchange your idea in the academic conferences, but you have to travel.

1.2 Why scientific writing is important

- Scientific writing is **often overlooked/neglected for undergraduate students**, since they are overwhelmed by large amount of class time

- Undergraduate students have to write **technical reports** or their **bachelor thesis**

- Scientific writing is critical for undergraduate students in their **earlier academic careers**, since it is all about how to effectively communicate your research findings to other people

Outline

1.3 How to improve scientific writing

Clear writing starts with clear thinking.

Once you know what you're trying to say,
   then pay attention to your words!

Before you start writing, ask:

   "What am I trying to say?"

When you finish writing, ask:

   "Have I said it?"

1.3 How to improve scientific writing

George **H**. **Heilmeier**, a former DARPA director (1975-1977), crafted a set of **questions** known as the "**Heilmeier** Catechism"

The purpose is to help Agency officials think through and evaluate proposed research programs.

1.3 How to improve scientific writing

Heilmeier Questions:

1. What is the problem to be addressed?
2. What motivates interest? Why is it hard? Why is it important?
3. How is it done today, by whom, and what is wrong with it?
4. How do you propose to address it?
5. What's the new idea here, and why can we succeed now but not before?
6. What recent breakthroughs now make this possible?
7. What is the impact if successful?
8. Who cares and what is the quantified value if successful?
9. What is your plan and approach?
10. How will the program be organized?
11. What are the biggest challenges and why?
12. How long will it take? Why?
13. What are the midterm and final exams?
14. How will you measure progress?
15. What investment resources are needed and what is your plan to secure them?
16. Computational Resources? Facilities? Space? People? Equipment? Management Support? Buy-in?

1.3 How to improve scientific writing

1. A good topic selection

- **Novelty:** please do not reinvent the wheel.

- **Correction:** please do not work on wrong things.

- **Contribution:** please do not make you research too simple and sometimes naïve.

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Make the reviewers & readers find interests in continuing to read your paper.

An example of my research:

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Air Transportation in China

2014	Global	China
Commercial Aircraft	**25851**	**2370 (↑10.5%)**
Commercial Airports	**3846**	**202 (↑4.7%)**
Aircraft Movements	**38million**	**7.93million (↑8.4%)**
Passenger Volume	**3.3billion**	**0.39billion (↑10.7%)**
Cargo Volume	**51.3million tons**	**5.94million (↑5.9%)**

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Aircraft Movements Trend VS. Punctuality Trend (2005-2014, China)

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Air Transportation Networks

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Chinese Air Navigation Route Networks

1. A good topic selection

Motivation: why you do this work.

Chinese Airline Flight Networks

CHINA SOUTHERN AIRLINES(CZ)

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Chinese Airline Flight Networks

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Worldwide Air Navigation Route Networks

1.3 How to improve scientific writing

1. A good topic selection

Motivation: why you do this work.

Air Transportation Network Vulnerability and Threat

Extreme Weather:

- Frankfurt airport: Europe's third busiest airport, on 9th December 2012, 150 incoming and outgoing flights were cancelled because of snow storm.

- Domestic, European and Intercontinental flights were all affected at the airport

1.3 How to improve scientific writing

2. How to select a good topic

The requirement of IEEE Journal of selected topics in signal processing

1. Is the paper technically sound?: Yes

   why not?

2. Is the coverage of the topic sufficiently comprehensive and balanced?: Treatment somewhat unbalanced, but not seriously so.

3. How would you describe technical depth of paper?: Appropriate for the Generally Knowledgeable Individual Working in the Field or a Related Field

4. How would you rate the technical novelty of the paper?: Novel

5. How would you rate the overall organization of the paper?: Satisfactory

6. Are the title and abstract satisfactory?: Yes

1.3 How to improve scientific writing

2. How to select a good topic

- **Literature review: Where are we? Where is the destination? How can we go there?**

- **Hot topic: google, survey, special issues and conference;**

- **Technical depth: a mathematic/coding/experiment tool.**

1.3 How to improve scientific writing

3. A reasonable overall organization

First, in **Introduction Section,** we show the background and motivation of our work.

Second, in **Literature Review and Related Work Sections,** we present the preliminary of our work, as the preparation for our study.

Third, **in Method Sections**, we propose our methodology in details.

Fourth, in **Experiment Section**, we verify the effectiveness of our proposed methodology.

Finally, **in Conclusion Section**, we summarize the whole paper, and also outlook the future work.

1.3 How to improve scientific writing

Task of writing a research paper can be daunting

Even with ground-breaking research, unless the paper is correctly written:

- at best, publication will be delayed

- at worse, never published

The goal of this lecture is to provide an overview of 'how to write a well-structured research paper for publication'

1.3 How to improve scientific writing

These tactics might also improve scientific writing:

- Can we tell it more like a story?

- Can we add a bit of history?

- Can we emphasize the most important aspects up high and add details later?

1.3 How to improve scientific writing

Paragraph organization tips:

1. Avoid a succession of loose sentences (monotonous).

2. Paragraph flow is helped by:

      parallel sentence structures

      logical flow of ideas

      if necessary, transition words

3. Your reader remembers the first sentence and the last sentence best. Make the last sentence memorable. Emphasis at the end!

1.3 How to improve scientific writing

Paragraph organization tips:

1. Avoid a succession of loose sentences (monotonous).

    --Outlining and organizing can help arrange ideas.

    --But, when stringing together a series of ideas, don't forget to vary sentence structure for readability.

1.3 How to improve scientific writing

Paragraph organization tips:

2. Paragraph flow is helped by:

      parallel sentence structures

      logical flow of ideas

      if necessary, transition words

logical flow of ideas:

- Sequential in time
- General→ specific
- Logical arguments (if a then b; a; therefore b)

1.3 How to improve scientific writing

What makes stories newsworthy (developing "news judgment")?

- Impacts lots of people
- Breaking news
- Timeliness
- Prominence
- Proximity
- Conflict
- Trends ("3 things make a trend")
- Humor/Surprise

1.3 How to improve scientific writing

Inverted pyramid style

1. CRUCIAL information

2. SUPPORTIVE information

3. REPETITIVE information

1.3 How to improve scientific writing

Key elements of publishing

➢ Ethical issues

➢ Style and language

➢ Structure of paper

➢ Components of paper

➢ Article submission/journal selection

➢ Publisher's process/peer review

1.3 How to improve scientific writing

Ethical issues

➢ Disclosure of Conflict of Interest
➢ Acknowledgment of funding sources
➢ Image manipulation guidelines
➢ Online submission - supplemental information (datasets, videos)

➢ For Health Sciences
  ➢ Submission of a Clinical Trials to a Central Registry
  ➢ Institutional Review Board approval

[http://www.blackwellpublishing.com/Publicationethics]

1.3 How to improve scientific writing

Style and language

- Please refer to the journal's author guide for notes on style
  - Some authors write their paper with a specific journal in mind
  - Others write the paper and then adapt it to fit the style of a journal they subsequently choose

- The objective is to report your findings and conclusions clearly and concisely as possible
- If English is not your first language, find a native English speaker (if possible) to review the content and language of the paper before submitting it
- Regardless of primary language, find a colleague/editor to review the content and language of the paper

[http://www.blackwellpublishing.com/Publicationethics]

1.3 How to improve scientific writing

4. A nice demand analysis

Video coding is urgent

I. INTRODUCTION

RECENTLY, high-resolution videos and large-sized screens are flooding into the daily life of humans, bringing about perfect visual enjoyment but at the same time huge challenge on communication bandwidth. It is labored for the once-booming H.264/AVC to complete this challenge with its available coding efficiency, thus motivating the birth of a new video coding standard, called High Efficiency Video Coding (HEVC). The draft of HEVC was issued in January, 2013, and many works have been done to constantly improve its coding efficiency.

Compared to H.264/AVC, HEVC can save bit rates by about 50% with comparable video quality [1]. This eminent coding efficiency mostly benefits from the new coding tree unit (C-TU) block partitioning structure, diverse intra/inter prediction modes, and other cutting-edge techniques [2] [3]. Along with the remarkable performance of coding efficiency, the encoding complexity of HEVC increases dramatically, ranging from

Complexity reduction is necessary in video coding

9% to 502% higher than H.264/AVC [4]. However, most of multimedia-ready devices, such as portable computers, pads, and smartphones, do not have the ability to sustain such massive complexity due to their limited computational powers. Therefore, the development and research on video coding should not only fasten on enhancing the coding efficiency, but also consider the computational complexity.

Complexity control is rather important for HEVC. On one hand, with the continuous demand for videos at higher resolutions, the complexity of video coding tremendously increases from one standard to the next, with HEVC climbing the highest so far. On the other hand, the amount of multimedia devices has been growing explosively from 2007 onwards (first generation of iPhone appeared). More and more portable devices featured by encoding and decoding videos are favored by consumers, such as smartphones, pads, carPCs, and other mobile devices. However, their computational powers vary from one device to another. Thus, for better development and implementation of HEVC on various platforms with disparate computing capability, it is necessary to develop an efficient complexity control approach for HEVC.

Complexity control is quite useful when reducing the complexity of video coding.

1.3 How to improve scientific writing

5. An unbeaten logic

We adopt the notion of transaction from Brown [1], as modified for distributed systems by White [2], using the four-phase interpolation algorithm of Green [3]. Our work differs from White in our advanced revocation protocol, which deals with the case of priority inversion as described by Yellow [4].

1.3 How to improve scientific writing

How to write well?

Words:

- Reduce dead weight words and phrases (Get rid of jargon and repetition)
- Cut, cut, cut; learn to part with your words
- Be specific

Sentences:

- Follow: subject + verb + object *(SVO)*
- Use strong verbs and avoid turning verbs into nouns
- Eliminate negatives; use positive constructions instead

Examples:

"I would like to assert that the author should be considered to be a buffoon."

→

"The author is a buffoon."

Examples:

"The expected prevalence of mental retardation, based on the assumption of a normal distribution of intelligence in the population, is stated to be theoretically about 2.5%.

→

"The expected prevalence of mental retardation, if intelligence is normally distributed, is 2.5%."

Examples:

"This paper provides a review of the basic tenets of cancer biology study design, using as examples studies that illustrate the methodologic challenges or that demonstrate successful solutions to the difficulties inherent in biological research."

→

"This paper reviews cancer biology study design, using examples that illustrate specific challenges and solutions."

Hunt down and cast out all unneeded words that might slow your reader.

"Very, really, quite, basically, generally…"

→These words seldom add anything useful.

Try the sentence without them and see if it improves.

Dead weight phrases

- in the event that
- in the nature of
- it has been estimated that
- it seems that
- the point I am trying to make
- what I mean to say is
- it may be argued that
- for the purpose of
- in a manner of speaking
- in a very real sense
- in my opinion
- in the case of
- …

Clunky phrases

Clunky phrases	Equivalent
• A majority of	**most**
• A number of	**many**
• Are of the same opinion	**agree**
• At the present moment	**now**
• By means of	**by**
• Less frequently occurring	**rare**
• All three of the	**the three**
• Fewer in number	**fewer**
• Give rise to	**cause**
• In all cases	**always**
• In a position to	**can**
• In close proximity to	**near**
• In order to	**to**

Wordy vs. Pointed

Wordy	To the point
• 3 am in the morning	**3 am**
• absolutely spectacular	**spectacular**
• a person who is honest	**an honest person**
• a total of 14 birds	**14 birds**
• biography of her life	**biography**
• circle around	**circle**
• close proximity	**proximity**
• completely unanimous	**unanimous**
• consensus of opinion	**consensus**
• cooperate together	**cooperate**
• each and every	**each**
• end result	**result**
• he is a man who	**he**

Wordy vs. Pointed

Wordy

- in spite of the fact that
- in the event that
- new innovations
- one and the same
- period of four days
- personally, I think/feel
- personal opinion
- refer back
- repeat again
- revert back
- shorter/longer in length
- had been previously found

Pointed

although

if

innovations

the same

four days

I think/feel

opinion

refer

repeat

revert

shorter/longer

had been found

Wordy vs. Pointed

Wordy

- small/large in size
- square/round/rectangular in shape
- surrounded on all sides
- surrounding circumstances
- the future to come
- there is no doubt that
- usual/habitual custom
- unexpected surprise

Pointed

small/large

square/round/rectangular

surrounded

circumstances

the future

no doubt

custom

surprise

Systematic review of the basics of writing

- Constantly be on the lookout for extraneous words that crop up like weeds….

- Ask yourself, is this word or phrase necessary?

- What happens if I take it out?

- Most of the time, you'll find you don't need it!

- <u>Be vigilant and ruthless</u>

- After investing much effort to put words on a page, we often find it hard to part with them.

But fight their seductive pull…

- Try the sentence without the extra words and see how it's better—conveys the same idea with <u>more power</u>

Eliminate negatives
use positive constructions instead

- Not honest   **dishonest**

- Not important   **trifling**

- Does not have   **lacks**

- Did not remember   **forgot**

- Did not pay attention to   **ignored**

- Did not have much confidence   **distrusted**

- Did not succeed   **failed**

Next time you read an article, pay attention to the following:

1. How many letters are in an average word?

2. How many words are in an average sentence?

3. How many sentences are in an average paragraph?

Sentence-editing exercise

Recent research suggests that these two disorders may not be as distinct as previously was thought and the degree of overlap may be considerable.

How it should be rewritten?

Sentence-editing exercise

Recent research suggests that these two disorders may not be as distinct as previously was thought and the degree of overlap may be considerable.

→Possible rewrite:

Recent research suggests that these two disorders may overlap considerably.

Sentence-editing exercise

The study of Barrett et al. (1997) is considered to be methodologically sound. In that study, 1,000 bacteria were transformed with the novel gene.

How it should be rewritten?

Sentence-editing exercise

The study of Barrett et al. (1997) is considered to be methodologically sound. In that study, 1,000 bacteria were transformed with the novel gene.

→Possible rewrite:

Using sound methods, Barret et al. (1997), transformed 1,000 bacteria with the novel gene. (**active voice**)

In a methodologically sound study by Barret et al. (1997), 1,000 bacteria were transformed with the novel gene. (**passive voice**)

Sentence-editing exercise

There are many scientists who don't like to write.

→Possible rewrite:

Many scientists don't like to write.

Punctuation & Parallelism

Punctuation

Our friends the dash, colon, semicolon, and parenthesis…

Note:

A clause is a unit of grammatical organization next below the sentence in rank.

A clause has a subject and a predicate.

Predicate: 谓语

Punctuation

Increasing power to separate:

Comma

Colon

Dash

Parentheses

Semicolon

Period

Punctuation

Increasing formality:

Dash

Parentheses

The others (Comma, Colon, Semicolon, Period)

Punctuation

Semicolon

Indicates a pause, typically between two main clauses, that is more pronounced than that indicated by a comma.

Example:

Kennedy could be a cold and vain man, and he led a life of privilege. But he knew something about the world; he also cared about it.

Punctuation

Parenthesis

Indicates a pause, typically between two main clauses, that is more pronounced than that indicated by a comma.

→ If you remove the material within the parentheses, the main point of the sentence should not change.

Punctuation

Colon

Use a colon after an independent clause to introduce a list of items, an explanation, an amplification, or an illustrative quotation.

The colon has more effect than the comma, less power to separate than the semicolon, and more formality than the dash.

Punctuation

Dash

Use a dash to set off an abrupt break or interruption and to announce a long explanation or summary. Helps add emphasis.

A dash is a mark of separation stronger than a comma, less formal than a colon, and more relaxed than parentheses

Punctuation

Dash-Some technical details

HYPHEN (1 unit): to connect compound words or non-range numbers; to break word that will continue on next line:

→ *little-known fact, en-dash, 723-8222*

EN-DASH (2 units): to indicate range (numbers, dates, time) or collaboration:

→ *pages 1 – 9 , open 9 am – 5 pm, Morris–Hayes lab, Sino–Soviet pact*

→ ***not*** *a compound name of an individual, as in Catherine Zeta-Jones*

EM-DASH (3 units): to represent a sudden break in thought that causes an abrupt change in sentence structure:

→ *The m-dash is longer—the length of the letter* m.

Parallel Construction

Parallel vs. Unparallel

Pairs of ideas—two ideas joined by "and", "or", or "but"—should be written in parallel form.

Example:

We hoped <u>to increase the response</u> and <u>to improve survival</u>.

<u>Infinitive phrase</u> and <u>infinitive phrase</u>.

Parallel Construction

Unparallel vs. Parallel

If you want to be a good doctor, you must <u>study hard</u>, <u>critically think about</u> the medical literature, and <u>you should be a good listener</u>.

If you want to be a good doctor you must <u>study hard</u>, <u>listen well</u>, and <u>think critically</u> about the medical literature.

If you want to be a good doctor, you must be <u>a good student</u>, <u>a good listener</u>, and <u>a critical thinker</u> about the medical literature.

Parallel Construction

Unparallel vs. Parallel

This research follows four distinct phases: (1) establishing measurement instruments (2) pattern measurement (3) developing interventions and (4) the dissemination of successful interventions to other settings and institutions.

This research follows four distinct phases: (1) establishing measurement instruments (2) measuring patterns (3) developing interventions and (4) disseminating successful interventions to other settings and institutions.

Similar words

Farther vs. further

Farther is used for distance. (think far)

Further is used for time or quantity. (think future)

I can throw a ball *farther* than you.

I am pursuing that research *further*.

Similar words

FORWARD v. FORWARDS v. FOREWORD
TOWARD v. TOWARDS

→ Some sources prefer adverbs *forward* and *toward* to *forwards* and *towards* (a bit more formal without the *s*; *s* more common in UK); foreword = preface to a book

Similar words

Die of vs. die from

People and animals die *of*, not from, specific diseases.

She died *of* a heart attack.

Similar words

Compliment vs. complement

Compliment is to praise or to present with a token of esteem.
Complement is to mutually complete each other.

She <u>complimented</u> his haircut.
That dress <u>complements</u> your eyes.

→   In *complement*, think of *"complete-ment"*

Similar words

Comprise vs. compose

Comprise means to contain. "Comprise" implies a complete listing, whereas "include" may signal an incomplete listing.

Compose means to make up.

The parts compose (make up) the whole; the whole comprises (contains) the parts.

The USA <u>comprises</u> 50 states. (the whole contains the parts)

Fifty states <u>compose</u> the USA. (the parts make up the whole)

The USA <u>is composed of</u> 50 states. (the whole is made up of the parts)

Fifty states <u>are comprised in</u> the USA. (the parts are contained in the whole)

Similar words

Comprise vs. compose

Cream and chocolate comprise chocolate sauce.
✔ Cream and chocolate compose chocolate sauce.

Chocolate sauce composes cream and chocolate.
✔ Chocolate sauce comprises cream and chocolate.

Similar words

Comprise vs. compose

The dessert was comprised of cream and chocolate.
✔ The dessert was composed of cream and chocolate.

✔ Cream and chocolate are comprised in chocolate sauce.
Cream and chocolate are composed of chocolate sauce.

Similar words

Locate vs. localize

Locate is to determine the position of something; to find its location.

Localize is to confine or fix in a particular area or part.

The police <u>located</u> the suspect at the edge of town.

Iodine tends to <u>localize</u> in the thyroid.

Similar words

They vs. their

Every one of us knows they are fallible.

✓ Every one of us knows she is fallible.

Each student pulled out their notebook.

✓ Each student pulled out his notebook.

→ Do not use "they" or "their" when the antecedent is singular (but can vary gender references)

Similar words

Prevalence vs. Incidence

Incidence is a RATE

How many new cases develop per unit of population?

Prevalence is a PROPORTION

 How widespread is a given disease?

Similar words

Principle v. principal

Principle is a fundamental truth or law

Principal is a leader

The school's <u>principal</u> declared it a holiday.

Her <u>principles</u> were impeccable.

Similar words

Rational v. rationale

Rational is an adjective, meaning sane or logical.

Rationale is a noun, meaning justification.

She was a rational human being.

Their rationale for the move was that it would save a great deal of money.

Similar words

Hyphenate or not hyphenate

Hyphenate multiple adjectives that modify a noun.

The ball was 21 feet in diameter. (noun)
The ball had a 21-foot diameter. (adjective)

Quiz

Quiz

✓ He died of unknown causes.

He died from unknown causes.

Quiz

I always thought it was further to the moon.

✓ I always thought it was farther to the moon.

Quiz

✔ She could have made it further in life.

She could have made it farther in life.

Quiz

Between you and I, we should have it done in no time.

✓ Between you and me, we should have it done in no time.

Quiz

The medical students heard seventeen lectures about the compliment cascade.

✔ The medical students heard seventeen lectures about the complement cascade.

Quiz

The affects of the war were devastating.

✓ The effects of the war were devastating.

Quiz

✓ She was affected by the war.

She was effected by the war.

Quiz

She was well-known.

✓ She was well known.

Quiz

✓ She was a well-known scientist.

She was a well known scientist.

Quiz

The previously-reported data were suspect.

✓ The previously reported data were suspect.

Quiz

✓ She was self-employed.

She was self employed.

Quiz

She was the best-read scientist in the lab.

✓ She was the best read scientist in the lab.

Quiz

The previously-reported data were suspect.

✓ The previously reported data were suspect.

Quiz

Each person is responsible for their grade.

✓ Each person is responsible for his grade.

Quiz

✓ Those colors are complementary.

Those colors are complimentary.

Quiz: The good scientific paper…

✓ Is focused on a specific question(s).

B. Covers a broad spectrum of disease or methodologic questions

→Less is More.

Quiz: The good scientific paper…

✓ Abstract and tables and figures are understandable without reading whole paper.

B. Abstract and tables and figures are understandable only with reading whole paper.

Quiz: The good scientific paper…

A. Writing is in passive voice (e.g. it was found that…).

✔ Writing is in active voice (we found that…).

C. Writing mixes active and passive voice.

➔MYTH: The passive voice is more objective.

It's not more objective, just more vague.

Active=claiming responsibility

The Active Voice is direct, vigorous, natural, and informative.

Quiz: The good scientific paper…

✓ A term defined in the methods section is used again and again (a rose, a rose, a rose)

B. Various synonyms for a term are used to prevent reader boredom. (a rose, a flower with a thorny stem, a fragrant flower)

→Define a term and use it consistently. Otherwise, you will confuse the reader.

Quiz: The good scientific paper…

A. Writing is flowery

✓ Writing is concise

→ Generally, the shorter, the better

✔ She doesn't take compliments well.

She doesn't take complements well.

✓ He's not rational at that time of the day.

He's not rationale at that time of the day.

✓ Her rationale was that the drugs would help alleviate the pain.

Her rational was that the drugs would help alleviate the pain.

We worked on localizing proteins in the cell from their phylogenetic profiles.

✔ We worked on locating proteins in the cell from their phylogenetic profiles.

✔ That action violated her principles.

hat action violated her principals.

Cream and chocolate comprise chocolate sauce.

✓ Cream and chocolate compose chocolate sauce.

Chocolate sauce composes cream and chocolate.

✓ Chocolate sauce comprises cream and chocolate.

✓ Cream and chocolate are comprised in chocolate sauce.

Cream and chocolate are composed of chocolate sauce.

The dessert was comprised of cream and chocolate.

✓ The dessert was composed of cream and chocolate.

✔ She accepted the compliment without a word.

She accepted the complement without a word.

✔ The sequencing of the human genome has been compared to a schoolyard brawl.

The sequencing of the human genome has been compared with a schoolyard brawl.

✔ You should take some ice cream; it's complimentary.

You should take some ice cream; it's complementary.

✔ He was very complimentary of your work.

He was very complementary of your work.

✔ Red and green are complementary colors.

Red and green are complimentary colors.

✔ The 20-pound weight loss helped his self-confidence.

The 20 pound weight loss helped his self-confidence.

Each person is responsible for their grade.

✓ Each person is responsible for his grade.

Public trust in the peer review process and the credibility of published articles depend in part on how well conflict of interest is handled during writing, peer review, and editorial decision making.

Public trust in the peer review process and the credibility of published articles depends in part on how well conflict of interest is handled during writing, peer review, and editorial decision making.

(Public trust in the peer review process) and (the credibility of published articles) depend in part on how well conflict of interest is handled during writing, peer review, and editorial decision making.

A + B → verb plural

Public trust (in the peer review process and the credibility of published articles) depends in part on how well conflict of interest is handled during writing, peer review, and editorial decision making.

Subject (clause item A + B) → verb singular

Some Notes on *Science* Style

Following are some general guidelines on preferred style for manuscripts submitted to *Science*:

- Avoid jargon; explain obscure terms and define acronyms (keep in mind that many potential readers of your work will not be specialists in your field).

- Use active voice when suitable, particularly when necessary for correct syntax, e.g.

  ✔ "To address this possibility, we constructed a λZap library . . .,"
  "To address this possibility, a λZap library was constructed . . ."

- Write concisely, e.g.

  ✔ "even though"
  "in spite of the fact that"

A note about breaking the rules…

Most writing rules are guidelines, not laws, and can be broken when the occasion calls for it.

A note about breaking the rules…

Most writing rules are guidelines, not laws, and can be broken when the occasion calls for it.

For example, sometimes it **is** appropriate to use the passive voice.

- When the action of the sentence is more important than who did it (e.g., materials and methods)

    Three liters of fluid is filtered through porous glass beads.

- To emphasize someone or something other than the agent that performed the action
- When the subject is unknown

A few notes on paraphrasing…

- Use your own words

- Work from memory

- Draw your own conclusions

- Do not simply re-arrange the original author's words

- Do not mimic the original author's sentence structure

Never ever plagiarism!

Organizational check-list

- Are the "what," "so what," and "why" explained in your opening paragraphs?

- Are the introductory and historical materials arranged to support the new developments?

- Are details arranged in descending order of importance?
    - e.g. summarize the main point prior to listing the specific examples—especially important when many background studies exist

Organizational check-list

- Do any scientific terms need defining or clarification?
- Is the language as straightforward and energetic as you can make it?
- Are there dead weight words or phrases?
- Have you used the passive voice unnecessarily?
- Is sentence structure needlessly complex?
- Is tense consistent throughout?
- Does every paragraph have a purpose?
- Is the overall organization as logical as you can make it?
- Are there any inconsistencies?
- Does it read like a story? Or are you bored to tears reading it?

The purpose of the discussion

- Answer the question posed in the Introduction
- Support your conclusion with details (yours, others)
- Defend your conclusion (acknowledge limits)
- Highlight the broader implications of the work

i.e., What do my results mean and why should anyone care?

The purpose of the discussion

The introduction moves from general to specific.

The discussion moves from specific to general.

The purpose of the discussion

1. Key finding (answer to the question(s) asked in Intro.)
   - Supporting explanation, details (lines of evidence)
   - Possible mechanisms or pathways
   - Is this finding novel?
2. Key secondary findings
3. Context
   - Compare your results with other people's results
   - Compare your results with existing paradigms
   - Explain unexpected or surprising findings
4. Strengths and limitations
5. What's next
   - Recommended confirmatory studies ("needs to be confirmed")
   - Unanswered questions
   - Future directions
6. The "so what?": implicate, speculate, recommend
   - Implications of basic science findings
7. Strong conclusion (kicker!)

Other things you can do to become a better writer

- Read, pay attention, and imitate.
- Talk about your research before trying to write about it.
- Develop a thesaurus habit. Search for the right word rather than settling for any old word.
- Respect your audience—try not to bore them!
- Stop waiting for "inspiration."
- Accept that writing is hard for everyone.
- Revise. Nobody gets it perfect on the first try.
- Learn how to cut ruthlessly. Never become too attached to your words.

About the numbers

"1900s"

- The 1900s were from 1900 to1909

  (just as the 1990s were from 1990 to 1999)

- Do you mean 1900 to 1999?
  - Use "the twentieth century"

About the numbers

"300% more"

DOES NOT EQUAL

"300% as much"

~ AND ~

"Risk was three times greater than" (x + 3x)

DOES NOT HAVE THE SAME MEANING AS

"Risk was three times as great as" (3x)

A little writing humour…

or "the importance of careful grammar…"

- Spotted in a toilet of a London office:
TOILET OUT OF ORDER.
PLEASE USE FLOOR BELOW

- In a Laundromat:
AUTOMATIC WASHING MACHINES: PLEASE REMOVE ALL YOUR
CLOTHES WHEN THE LIGHT GOES OUT.

- In a London department store:
BARGAIN BASEMENT UPSTAIRS.

- In an office:
WOULD THE PERSON WHO TOOK THE STEPLADDER
YESTERDAY PLEASE BRING IT BACK OR FURTHER STEPS WILL
BE TAKEN.

A little writing humour…

or "the importance of careful grammar…"

In an office:
AFTER TEA BREAK STAFF SHOULD EMPTY THE TEAPOT AND STAND UPSIDE DOWN ON THE DRAINING BOARD.

Outside a secondhand shop:
WE EXCHANGE ANYTHING -- BICYCLES, WASHING MACHINES, ETC. WHY NOT BRING YOUR WIFE ALONG AND GET A WONDERFUL BARGAIN?

Notice in health food shop window:
CLOSED DUE TO ILLNESS.

Spotted in a safari park:
ELEPHANTS PLEASE STAY IN YOUR CAR.

A little writing humour…

or "the importance of careful grammar…"

Seen during a conference:
FOR ANYONE WHO HAS CHILDREN AND DOESN'T KNOW IT, THERE IS A DAY CARE ON THE FIRST FLOOR.

Notice in a farmer's field:
THE FARMER ALLOWS WALKERS TO CROSS THE FIELD FOR FREE, BUT THE BULL CHARGES.

Message on a leaflet:
IF YOU CANNOT READ, THIS LEAFLET WILL TELL YOU HOW TO GET LESSONS.

On a repair shop door:
WE CAN REPAIR ANYTHING. (PLEASE KNOCK HARD ON THE DOOR - THE BELL DOESN'T WORK.)

Outline

1.1 **What** is scientific writing?

1.2 **Why** it is important?

1.3 **How** to improve it?

1.4 **Where** to publish it?

1.4 Where to publish your work

Author Publishing Priorities

- Quality and speed

  Top items include

  - Refereeing speed

  - Refereeing standard

  - Journal reputation

- Editor/board, physical quality and publication services

1.4 Where to publish your work

Author VS Reader Behaviour

Author behaviour
- o Peer review essential
- o Other journal functions crucial
- o Wider dissemination
- o Want to publish more

Reader behaviour
- Want integrated system
- Browsing is crucial
- Quality information important
- Want to read less

Contradicting!

1.4 Where to publish your work

Author vs. Reader Behaviour

Reader's priorities

- Authoritative quality articles

- Ease of access

- Rapid delivery

- Convenient format

- Linking of information - clustering

- Low or no cost

- Up-to-date information

- Other

[www.alpsp.org]

1.4 Where to publish your work

Manuscript submission

➢ Select your journal carefully

➢ Read the aims and scope

➢ Think about your target audience and the level of your work – do you have a realistic chance of being accepted?

➢ Follow the guidelines in the notes for authors and include everything they ask – it makes the editor's job easier…

➢ Articles should not be submitted to more than one journal at a time

1.4 Where to publish your work

Author priorities for journal selection

Key (Determining) factors

- Impact Factor
- Reputation
- Access to the target audience
- Overall editorial standard
- Publication speed
- International coverage
- Open Access

Marginal (Qualifying) factors

- Experience as a referee
- Track record
- Quality and colour illustrations
- Service elements

1.4 Where to publish your work

1. Journal or Conference

- Journals are normally much more important than conferences, except computer science.

- In EE and CS fields, conferences are faster than journals. But the situation is changing.

> Authors who are working in these emerging areas are cordially invited to submit their papers to this "Special Track." These papers will receive fast track review priority by an AE who are familiar with the topics. When submitting your paper in these areas, please select "Emerging Multimedia Areas" Category. When selecting EDICS, please select from 20 topics under "10 EMERGING TOPICS IN MULTIMEDIA"
> Our current average days from submission to first decision is around 65. We expect papers submitted to this special track will reach first decision well under 60 days. This is comparable to the review time for most multimedia conferences. I encourage everyone to consider T-MM as your first choice for submission.
>
> Chang Wen Chen
> Editor-in-Chief, IEEE Trans. on Multimedia

- In chemistry and physic fields, conferences are nothing.

Which journal?

A few questions to ask yourself:

- Is topic of my paper within its scope and format?
- Would it match my audience?
- Ask mentor or other senior researchers: appropriateness
- Impact Factor
- Consequences of wrong decision: time lost; failure to publish

1.4 Where to publish your work

2. How to choose a nice journal

Impact Factor (IF): is a measure reflecting **the average number of citations to recent articles** published in that journal.

- It is frequently used as a proxy for the **relative importance** of a journal within its field, with journals with **higher impact factors** deemed to be more important than those with lower ones.

$$IF_y = \frac{Citations_{y-1} + Citations_{y-2}}{Publications_{y-1} + Publications_{y-2}}$$

- For example, *Nature* had an impact score of 41.456 in 2014

$$IF_{2014} = \frac{Citations_{2013} + Citations_{2012}}{Publications_{2013} + Publications_{2012}} = \frac{29753 + 41924}{860 + 869} = 41.456$$

This means that, on average, its papers published in 2012 and 2013 received roughly 41 citations each in 2014

1.4 Where to publish your work

2. How to choose a nice journal

Journal Citation Reports (JCR) also includes a **five-year impact factor**

https://clarivate.com/products/journal-citation-reports/

JCR is an annual publication by Clarivate Analytics and it provides information about academic journals in the natural sciences and social sciences, which includes:

- 11,000+ indexed journals
- Nearly 250 disciplines
- 81 countries
- 2.2 million articles, reviews, and other source items

1.4 Where to publish your work

2. How to choose a nice journal

The JCR shows rankings of journals by impact factor

Journal Data Filtered By:
Selected JCR Year: 2014
Selected Editions: SCIE, SSCI

Rank	Full Journal Title	Total Cites	Impact Factor
1	CA-A CANCER JOURNAL FOR CLINICIANS	18,594	115.84
2	NEW ENGLAND JOURNAL OF MEDICINE	268,652	55.873
3	CHEMICAL REVIEWS	137,600	46.568
4	LANCET	185,361	45.217
5	NATURE REVIEWS DRUG DISCOVERY	23,811	41.908
6	NATURE BIOTECHNOLOGY	45,986	41.514
7	NATURE	617,363	41.456
8	Annual Review of Immunology	16,750	39.327
9	NATURE REVIEWS MOLECULAR CELL BIOLOGY	35,928	37.806
10	NATURE REVIEWS CANCER	39,868	37.4
11	NATURE REVIEWS GENETICS	29,388	36.978
12	NATURE MATERIALS	64,622	36.503
13	JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION	126,479	35.289
14	NATURE REVIEWS IMMUNOLOGY	28,938	34.985
15	Nature Nanotechnology	34,387	34.048
16	SCIENCE	557,558	33.611
17	CHEMICAL SOCIETY REVIEWS	81,907	33.383
18	Annual Review of Astronomy and Astrophysics	8,462	33.346
19	Nature Photonics	23,499	32.386
20	CELL	201,108	32.242
21	NATURE METHODS	32,342	32.072
22	NATURE REVIEWS NEUROSCIENCE	32,989	31.427
23	Annual Review of Biochemistry	19,927	30.283
24	REVIEWS OF MODERN PHYSICS	39,402	29.604
25	NATURE GENETICS	85,481	29.352
26	PROGRESS IN MATERIALS SCIENCE	8,475	27.417
27	NATURE MEDICINE	62,572	27.363
28	PHYSIOLOGICAL REVIEWS	24,528	27.324
29	PROGRESS IN POLYMER SCIENCE	19,454	26.932
30	Nature Chemistry	16,973	25.325
31	LANCET ONCOLOGY	24,861	24.69
32	NATURE REVIEWS MICROBIOLOGY	18,866	23.574
33	CANCER CELL	27,283	23.523
34	Annual Review of Plant Biology	16,494	23.3
35	LANCET INFECTIOUS DISEASES	13,161	22.433
36	ACCOUNTS OF CHEMICAL RESEARCH	53,349	22.323
37	Cell Stem Cell	17,720	22.268

2. How to choose a nice journal

The JCR shows rankings of journals by discipline

So far, there are **177** disciplines

Relevant to my research:

- ✓ ENGINEERING, AEROSPACE

- ✓ TRANSPORTATION SCIENCE & TECHNOLOGY

- ✓ OPERATIONS RESEARCH & MANAGEMENT SCIENCE

Disciplines
ACOUSTICS
AGRICULTURAL ECONOMICS & POLICY
AGRICULTURAL ENGINEERING
AGRICULTURE, DAIRY & ANIMAL SCIENCE
AGRICULTURE, MULTIDISCIPLINARY
AGRONOMY
ALLERGY
ANATOMY & MORPHOLOGY
ANDROLOGY
ANESTHESIOLOGY
ASTRONOMY & ASTROPHYSICS
AUDIOLOGY & SPEECH-LANGUAGE PATHOLOGY
AUTOMATION & CONTROL SYSTEMS
BEHAVIORAL SCIENCES
BIOCHEMICAL RESEARCH METHODS
BIOCHEMISTRY & MOLECULAR BIOLOGY
BIODIVERSITY CONSERVATION
BIOLOGY
BIOPHYSICS
BIOTECHNOLOGY & APPLIED MICROBIOLOGY
CARDIAC & CARDIOVASCULAR SYSTEMS
CELL & TISSUE ENGINEERING
CELL BIOLOGY
CHEMISTRY, ANALYTICAL
CHEMISTRY, APPLIED
CHEMISTRY, INORGANIC & NUCLEAR
CHEMISTRY, MEDICINAL
CHEMISTRY, MULTIDISCIPLINARY
CHEMISTRY, ORGANIC
CHEMISTRY, PHYSICAL
CLINICAL NEUROLOGY
COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE
COMPUTER SCIENCE, CYBERNETICS
COMPUTER SCIENCE, HARDWARE & ARCHITECTURE
COMPUTER SCIENCE, INFORMATION SYSTEMS
COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS
COMPUTER SCIENCE, SOFTWARE ENGINEERING
COMPUTER SCIENCE, THEORY & METHODS
CONSTRUCTION & BUILDING TECHNOLOGY
CRITICAL CARE MEDICINE
CRYSTALLOGRAPHY
DENTISTRY, ORAL SURGERY & MEDICINE
DERMATOLOGY
DEVELOPMENTAL BIOLOGY
ECOLOGY
EDUCATION, SCIENTIFIC DISCIPLINES
ELECTROCHEMISTRY
EMERGENCY MEDICINE
ENDOCRINOLOGY & METABOLISM
ENERGY & FUELS
ENGINEERING, AEROSPACE
ENGINEERING, BIOMEDICAL
ENGINEERING, CHEMICAL
ENGINEERING, CIVIL
ENGINEERING, ELECTRICAL & ELECTRONIC
ENGINEERING, ENVIRONMENTAL
ENGINEERING, GEOLOGICAL
ENGINEERING, INDUSTRIAL
ENGINEERING, MANUFACTURING
ENGINEERING, MARINE
ENGINEERING, MECHANICAL
ENGINEERING, MULTIDISCIPLINARY
ENGINEERING, OCEAN
ENGINEERING, PETROLEUM
ENTOMOLOGY
ENVIRONMENTAL SCIENCES
EVOLUTIONARY BIOLOGY
FISHERIES
FOOD SCIENCE & TECHNOLOGY
FORESTRY
GASTROENTEROLOGY & HEPATOLOGY
GENETICS & HEREDITY
GEOCHEMISTRY & GEOPHYSICS
GEOGRAPHY, PHYSICAL
GEOLOGY
GEOSCIENCES, MULTIDISCIPLINARY
GERIATRICS & GERONTOLOGY
HEALTH CARE SCIENCES & SERVICES
HEMATOLOGY
HISTORY & PHILOSOPHY OF SCIENCE
HORTICULTURE
IMAGING SCIENCE & PHOTOGRAPHIC TECHNOLOGY
IMMUNOLOGY
INFECTIOUS DISEASES
INSTRUMENTS & INSTRUMENTATION
INTEGRATIVE & COMPLEMENTARY MEDICINE
LIMNOLOGY
LOGIC
MARINE & FRESHWATER BIOLOGY
MATERIALS SCIENCE, BIOMATERIALS
MATERIALS SCIENCE, CERAMICS
MATERIALS SCIENCE, CHARACTERIZATION & TESTING
MATERIALS SCIENCE, COATINGS & FILMS
MATERIALS SCIENCE, COMPOSITES
MATERIALS SCIENCE, MULTIDISCIPLINARY
MATERIALS SCIENCE, PAPER & WOOD
MATERIALS SCIENCE, TEXTILES
MATHEMATICAL & COMPUTATIONAL BIOLOGY
MATHEMATICS
MATHEMATICS, APPLIED
MATHEMATICS, INTERDISCIPLINARY APPLICATIONS
MECHANICS
MEDICAL ETHICS
MEDICAL INFORMATICS
MEDICAL LABORATORY TECHNOLOGY
MEDICINE, GENERAL & INTERNAL
MEDICINE, LEGAL
MEDICINE, RESEARCH & EXPERIMENTAL
METALLURGY & METALLURGICAL ENGINEERING
METEOROLOGY & ATMOSPHERIC SCIENCES
MICROBIOLOGY
MICROSCOPY
MINERALOGY
MINING & MINERAL PROCESSING
MULTIDISCIPLINARY SCIENCES
MYCOLOGY
NANOSCIENCE & NANOTECHNOLOGY
NEUROIMAGING
NEUROSCIENCES
NUCLEAR SCIENCE & TECHNOLOGY
NURSING
NUTRITION & DIETETICS
OBSTETRICS & GYNECOLOGY
OCEANOGRAPHY
ONCOLOGY
OPERATIONS RESEARCH & MANAGEMENT SCIENCE
OPHTHALMOLOGY
OPTICS
ORNITHOLOGY
ORTHOPEDICS
OTORHINOLARYNGOLOGY
PALEONTOLOGY
PARASITOLOGY
PATHOLOGY
PEDIATRICS
PERIPHERAL VASCULAR DISEASE
PHARMACOLOGY & PHARMACY
PHYSICS, APPLIED
PHYSICS, ATOMIC, MOLECULAR & CHEMICAL
PHYSICS, CONDENSED MATTER
PHYSICS, FLUIDS & PLASMAS
PHYSICS, MATHEMATICAL
PHYSICS, MULTIDISCIPLINARY
PHYSICS, NUCLEAR
PHYSICS, PARTICLES & FIELDS
PHYSIOLOGY
PLANT SCIENCES
POLYMER SCIENCE
PRIMARY HEALTH CARE
PSYCHIATRY
PSYCHOLOGY
PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH
RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING
REHABILITATION
REMOTE SENSING
REPRODUCTIVE BIOLOGY
RESPIRATORY SYSTEM
RHEUMATOLOGY
ROBOTICS
SOIL SCIENCE
SPECTROSCOPY
SPORT SCIENCES
STATISTICS & PROBABILITY
SUBSTANCE ABUSE
SURGERY
TELECOMMUNICATIONS
THERMODYNAMICS
TOXICOLOGY
TRANSPLANTATION
TRANSPORTATION SCIENCE & TECHNOLOGY
TROPICAL MEDICINE
UROLOGY & NEPHROLOGY
VETERINARY SCIENCES
VIROLOGY
WATER RESOURCES
ZOOLOGY

1.4 Where to publish your work

2. How to choose a nice journal

Journal list for the discipline (JCR 2014 data):

Aerospace, Engineering

In total, there are 27 journals

Journal	issn	IF
PROG AEROSP SCI	0376-0421	2.127
IEEE T AERO ELEC SYS	0018-9251	1.394
AIAA J	0001-1452	1.165
J GUID CONTROL DYNAM	0731-5090	1.151
AEROSP SCI TECHNOL	1270-9638	1
J AEROSPACE ENG	0893-1321	0.926
INT J SATELL COMM N	1542-0973	0.896
ACTA ASTRONAUT	0094-5765	0.816
ESA BULL-EUR SPACE	0376-4265	0.698
CHINESE J AERONAUT	1000-9361	0.689
MICROGRAVITY SCI TEC	0938-0108	0.648
INT J AEROACOUST	1475-472X	0.644
J AM HELICOPTER SOC	0002-8711	0.627
J PROPUL POWER	0748-4658	0.612
J AIRCRAFT	0021-8669	0.488
AIRCR ENG AEROSP TEC	1748-8842	0.48
J SPACECRAFT ROCKETS	0022-4650	0.474
INT J MICRO AIR VEH	1756-8293	0.471
J ASTRONAUT SCI	0021-9142	0.455
P I MECH ENG G-J AER	0954-4100	0.454
IEEE AERO EL SYS MAG	0885-8985	0.438
COSMIC RES+	0010-9525	0.348
AERONAUT J	0001-9240	0.336
T JPN SOC AERONAUT S	0549-3811	0.315
J AEROS COMP INF COM	1940-3151	0.281
INT J TURBO JET ENG	0334-0082	0.218
AEROSPACE AM	0740-722X	0.048

1.4 Where to publish your work

2. How to choose a nice journal

Journal list for the discipline (JCR 2014 data):
Transportation Science & Technology

In total, there are 32 journals

Journal	issn	IF
COMPUT-AIDED CIV INF	1093-9687	5.625
TRANSPORT RES B-METH	0191-2615	3.894
TRANSPORT RES C-EMER	0968-090X	2.82
IEEE T VEH TECHNOL	0018-9545	2.642
TRANSPORT RES A-POL	0965-8564	2.525
IEEE T INTELL TRANSP	1524-9050	2.472
TRANSPORTMETRICA B	2168-0566	2.4
TRANSPORT SCI	0041-1655	2.294
TRANSPORT RES E-LOG	1366-5545	2.193
TRANSPORTMETRICA	1812-8602	2.068
J ADV TRANSPORT	0197-6729	1.878
NETW SPAT ECON	1566-113X	1.803
TRANSPORT RES D-TR E	1361-9209	1.626
TRANSPORTATION	0049-4488	1.617
IEEE VEH TECHNOL MAG	1556-6072	1.567
INT J ENGINE RES	1468-0874	1.4
TRANSPORTMETRICA A	2324-9935	1.33
J INTELL TRANSPORT S	1547-2450	1.25
IET INTELL TRANSP SY	1751-956X	0.954
J TRANSP ENG	0733-947X	0.877
INT J AUTO TECH-KOR	1229-9138	0.821
P I MECH ENG F-J RAI	0954-4097	0.743
P I MECH ENG D-J AUT	0954-4070	0.645
TRANSPORT RES REC	0361-1981	0.556
TRANSPORT-VILNIUS	1648-4142	0.529
TRANSP LETT	1942-7867	0.41
P I CIVIL ENG-TRANSP	0965-092X	0.321
PROMET-ZAGREB	0353-5320	0.292
TRANSPORT PLAN TECHN	0308-1060	0.255
INT J VEHICLE DES	0143-3369	0.239
INT J HEAVY VEH SYST	1744-232X	0.239
ITE J	0162-8178	0.147

1.4 Where to publish your work

2. How to choose a nice journal

Journal list for the discipline (JCR 2014 data):

Operation Research & Management Science

In total, there are 79 journals

Journal	issn	IF
J OPER MANAG	0272-6963	4.478
TRANSPORT RES B-METH	0191-2615	3.894
OMEGA-INT J MANAGE S	0305-0483	3.19
TECHNOVATION	0166-4972	2.704
MANAGE SCI	0025-1909	2.524
TRANSPORT SCI	0041-1655	2.294
TRANSPORT RES E-LOG	1366-5545	2.193
RELIAB ENG SYST SAFE	0951-8320	2.048
DECIS SUPPORT SYST	0167-9236	2.036
MATH PROGRAM	0025-5610	1.984
EXPERT SYST APPL	0957-4174	1.965
INT J INF TECH DECIS	0219-6220	1.89
SYST CONTROL LETT	0167-6911	1.886
J MANUF SYST	0278-6125	1.847
EUR J OPER RES	0377-2217	1.843
NETW SPAT ECON	1566-113X	1.803
PROD OPER MANAG	1059-1478	1.759
IEEE SYST J	1932-8184	1.746
COMPUT OPER RES	0305-0548	1.718
SAFETY SCI	0925-7535	1.672
INT J SYST SCI	0020-7721	1.579
OPTIM CONTR APPL MET	0143-2087	1.535
OPER RES	0030-364X	1.5
EUR J IND ENG	1751-5254	1.5
M&SOM-MANUF SERV OP	1523-4614	1.45
FLEX SERV MANUF J	1936-6582	1.439
J OPTIMIZ THEORY APP	0022-3239	1.406
J GLOBAL OPTIM	0925-5001	1.355
INT J PROD RES	0020-7543	1.323
J QUAL TECHNOL	0022-4065	1.271
ENG OPTIMIZ	0305-215X	1.23
OPTIM METHOD SOFTW	1055-6788	1.21
J SCHEDULING	1094-6136	1.186
INFORMS J COMPUT	1091-9856	1.12
ANN OPER RES	0254-5330	1.103
OR SPECTRUM	0171-6468	1.09
IIE TRANS	0740-817X	1.064
INT J COMPUT INTEG M	0951-192X	1.019
FUZZY OPTIM DECIS MA	1568-4539	1

Journal	issn	IF
QUAL RELIAB ENG INT	0748-8017	0.994
PROD PLAN CONTROL	0953-7287	0.991
OPTIM LETT	1862-4472	0.99
COMPUT OPTIM APPL	0926-6003	0.977
SORT-STAT OPER RES T	1696-2281	0.962
OPTIM ENG	1389-4420	0.955
MATH OPER RES	0364-765X	0.924
SYSTEMS ENG	1098-1241	0.923
4OR-Q J OPER RES	1619-4500	0.918
J OPER RES SOC	0160-5682	0.911
PAC J OPTIM	1348-9151	0.798
CENT EUR J OPER RES	1435-246X	0.787
P I MECH ENG O-J RIS	1748-006X	0.775
OPTIMIZATION	0233-1934	0.771
TOP	1134-5764	0.766
NETWORKS	0028-3045	0.739
DISCRETE EVENT DYN S	0924-6703	0.667
ENG ECON	0013-791X	0.647
DISCRETE OPTIM	1572-5286	0.629
OPER RES LETT	0167-6377	0.624
J SYST ENG ELECTRON	1004-4132	0.605
STUD INFORM CONTROL	1220-1766	0.605
QUEUEING SYST	0257-0130	0.602
J SYST SCI SYST ENG	1004-3756	0.566
NAV RES LOG	0894-069X	0.563
MATH METHOD OPER RES	1432-2994	0.539
J IND MANAG OPTIM	1547-5816	0.536
APPL STOCH MODEL BUS	1524-1904	0.532
CONCURRENT ENG-RES A	1063-293X	0.531
INT J TECHNOL MANAGE	0267-5730	0.492
INT T OPER RES	0969-6016	0.481
IMA J MANAG MATH	1471-678X	0.471
INTERFACES	0092-2102	0.443
INFOR	0315-5986	0.41
J SIMUL	1747-7778	0.383
QUAL TECHNOL QUANT M	1684-3703	0.339
RAIRO-OPER RES	0399-0559	0.333
PROBAB ENG INFORM SC	0269-9648	0.328
MIL OPER RES	0275-5823	0.312
ASIA PAC J OPER RES	0217-5959	0.22

1.4 Where to publish your work

2. How to choose a nice journal

One top journal in transportation field:

Transportation Research Part B: Methodological

https://www.journals.elsevier.com/transportation-research-part-b-methodological/

1.4 Where to publish your work

2. How to choose a nice journal

- Reputation vs. ranking

  ✓ Transportation Science

  ✓ Transportation Research Part B: Methodological

  ✓ Transportation Research Part C: Emerging Technologies

  ✓ Transportation Research Part E: Logistics and Review

  ✓ IEEE Transactions on Intelligent Transportation Systems

  ✓ Transportation Research Part A: Policy

  ✓ Transportation Research Part D: Environmental

  ✓ Networks and Spatial Economics

  ✓ Transportmetrica A/B

  ✓ Journal of Advanced Transportation

1.4 Where to publish your work

2. How to choose a nice journal

Author-level metrics: are citation metrics that measure the bibliometric impact of individual authors, researchers, academics, and scholars.

A prime example: Google Scholar H-index

h-index: The largest number h such that h publications have at least h citations

i10-index: The number of publications with at least 10 citations.

1.4 Where to publish your work

Traditional vs. Open-Access Journals

1.4 Where to publish your work

Traditional vs. Open-Access Journals

- **Traditionally-published journals** are mostly funded through subscriptions or advertising

- **In the OA journals**, scholarly journals make their content freely available online to all readers without needing a subscription or other fees. In general, the cost of publication is paid by you (the author)

These are journals that give authors the choice to publish in a traditional format or an OA format for an article processing fee

1.4 Where to publish your work

Traditional vs. Open-Access Journals

Pros and cons of traditional vs. Open-Access publishing

❑ **Free to You vs Pay to Publish, but free to your readers**

Check if you **have available funding** before you submitting your papers and be prepared to pay!

❑ **Only Accessible to Subscribers vs High Visibility**

High visibility → may lead to higher **number of citations,** which is one indicator of a scientist's productivity and the impact of their research

❑ **A Long 'Paper Waiting' vs Speed of Publication**

OA journals have **shorter time** between acceptance and publication

Question: Which one I should choose?

1.4 Where to publish your work

Traditional vs. Open-Access Journals

Answer:

It depends on the author, their goals, the topic of their research, their financial situation and the standpoint in their career.

Therefore, the question is not which one is better, rather it is which publication format is best for your particular paper at a particular time.

1.4 Where to publish your work

However, keep in mind that each coin has two sides!

1.4 Where to publish your work

- **Criticisms on Impact Factor**

- Debate on the validity of the impact factor as a measure of journal importance and the effect of policies that editors may adopt to boost their impact factor

  - For instance, the editors might force you to cite at least 5 papers from his journal

- The effect of the impact factor on behavior of scholars, editors and other stakeholders

- Invalided comparisons across disciplines or within different fields of research of one discipline

We need a democratic discussion on the social value of research assessment and the growing precariousness of scientific careers

1.4 Where to publish your work

Conference vs. Journal

1.4 Where to publish your work

3. How to choose a nice conference

➢ You need to check:

Reputation, ranking, keynote speakers, acceptance rate, paper length

➢ Reasons to attend conferences:

Meet experts & influencers face to face

Perfect network opportunities

Learning in a new space

Break out of your comfort zone

Conference provide a unique convergence of networking, learning, and fun into a single package. A good conference forces you to grow and challenge yourself.

1.4 Where to publish your work

But, attending conferences is not for free!

You have to

- Spend time & money on traveling

- Pay the conference registration fee

- Often you need to submit & present your paper, since in general conferences have the "no paper, no go" policy

Learn to make trade-offs among time & money & networking

1.4 Where to publish your work

3. How to choose a nice conference

- A ranking from Microsoft Research, and there are a lot of other rankings…

Top conferences in computer vision

1–46 of 46 results

All Years

Conferences	Publications	Citation
CVPR - Computer Vision and Pattern Recognition	7712	169884
ICCV - International Conference on Computer Vision	2968	88067
ECCV - European Conference on Computer Vision	2145	58805
FGR - IEEE International Conference on Automatic Face and Gesture Recognition	972	20270
BMVC - British Machine Vision Conference	1522	16788
WACV - Workshop on Applications of Computer Vision	755	7657
ACCV - Asian Conference on Computer Vision	1213	6123
3DIM - International Conference on 3-D Imaging and Modeling	349	4451
3DPVT - 3D Data Processing Visualization and Transmission	422	3086
Scale-Space - Scale-Space Theories in Computer Vision	386	3073
ICVS - International Conference on Computer Vision Systems	293	2764
CVRMed - Computer Vision, Virtual Reality and Robotics in Medicine	164	2369
ICARCV - International Conference on Control, Automation, Robotics and Vision	2026	2358
EMMCVPR - Energy Minimization Methods in Computer Vision and Pattern Recognition	255	2090
DGCI - Discrete Geometry for Computer Imagery	462	1973
ICCV Workshops	27	1394
CRV - Canadian Conference on Computer and Robot Vision	560	1376
ISVC - International Symposium on Visual Computing	1101	1355

1.4 Where to publish your work

What you need to know about the peer review process:

➢ Most journal editors will make an initial decision on a paper - to review or to reject

➢ Most editors appoint two referees

➢ Refereeing speed varies tremendously between journals

➢ Authors should receive a decision of Accept, Accept with Revision (Minor or Major), or Reject

➢ If a paper is rejected, most editors will write to you explaining their decision

➢ After rejection, authors have the option of submitting the paper to another journal - editor's suggestions should be addressed

Overview of Peer Review Process

1.4 Where to publish your work

Some additional documents for the submission process:

➢ Cover letter

➢ Highlight

➢ A list of suggested reviewers

➢ Manuscript without author information

➢ Manuscript with author information

1.4 Where to publish your work

➢ **Cover letter sample:**

Dear Editors,

Hereby we submit the manuscript XXX for your journal XXX.

Explain why do you think your work fits this journal?

Emphasize what are your novel contributions of your manuscript?

We hope to make a significant contribution to your journal XXX.

Thank you very much.

Best Regards

XXX on behalf of all authors

1.4 Where to publish your work

➢ **Highlights sample:**

• Bibliometric analysis and graphical mapping of the evolution of the air transport/JATM knowledge body.

• CiteSpace visualization of 1483 JATM papers from 2001 to Covid-19 outbreak (end of 2019).

• Pandemics and economic crises not dominant in influencing JATM literature neither in frequency nor in impact.

• Recovery, crisis and disruption are important key words in JATM papers but no dominant authors nor institutions.

• Recent JATM pandemic and recovery management literature can assist with transitioning out of COVID-19 world.

[https://www.sciencedirect.com/science/article/pii/S0969699720304993]

1.4 Where to publish your work

➢ **Confirming submission sample:**

This is an automated message.

Manuscript Number: XXX

XXX

Dear Dr Sun,

We have received the above referenced manuscript you submitted to Transportation Research Part B.

To track the status of your manuscript, please log in as an author at https://www.editorialmanager.com/trb/, and navigate to the "**Manuscript Being Processed**" folder.

Thank you for submitting your manuscript to this journal.

Kind regards,

Transportation Research Part B

1.4 Where to publish your work

➢ **Confirming submission sample:**

This is an automated message.

Dear Dr Sun,

Your above referenced submission has been assigned **a manuscript number**: XXX.

To track the status of your manuscript, please log in as an author at https://www.editorialmanager.com/jatm/, and navigate to the "**Submissions Being Processed**" folder.

Thank you for submitting your work to this journal.

Kind regards,

Journal of Air Transport Management

1.4 Where to publish your work

➢ **Desk rejection sample** ☹☹

Dear Dr. Author,

Thank you for submitting your manuscript, which was very interesting and I think with some work will be a valuable contribution to the literature. I was especially intrigued with your approach to distinguishing host-choice errors from oligophagy, which is a problem very much in need of a solution. However, I don't think our journal is the right place for the manuscript you've written; I think it might reach its audience better in an entomology or plant-insect interactions journal. I'm returning it to you without further review, therefore, in order not to delay its eventual publication. Good luck!

Sincerely,

Dr. Editor

1.4 Where to publish your work

> **Sample for your manuscript has been sent for review**

Dear Dr. Sun,

I am currently identifying and contacting reviewers who are acknowledged experts in the field. Since peer review is a voluntary service it can take time to find reviewers who are both qualified and available. While reviewers are being contacted, the status of your manuscript will appear in EVISE® as 'Reviewer Invited'.

Once a reviewer agrees to review your manuscript, the status will change to **'Under Review'**. When I have received the required number of expert reviews, the status will change to 'Ready for Decision' while I evaluate the reviews before making a decision on your manuscript.

To track the status of your manuscript, please log into EVISE® and go to 'My Submissions' via:

http://www.evise.com/evise/faces/pages/navigation/NavController.jspx?JRNL_ACR=TRB

Kind regards,

Transportation Research Part B

1.4 Where to publish your work

➢ **Decision on submission sample** ☹

Dear Dr. Sun,

Thank you for submitting your manuscript to Transportation Research Part E: Logistics and Transportation Review. Your manuscript review is handled by one EAB member. The EAB member has completed your manuscript review. I regret to inform you that both reviewers and EAB member have advised against publishing your manuscript, and I concur with their recommendations after going through their review reports and EAB member's assessment report. Hence, we must therefore **decline** your manuscript. However, you are encouraged to re-submit your manuscript with a detailed response report provided that you can well address the critical comments.

Please refer to the comments listed at the end of this letter for details of why I reached this decision.

We appreciate your submitting your manuscript to this journal and for giving us the opportunity to consider your work.

Kind regards,

Editor In Chief

Transportation Research Part B

1.4 Where to publish your work

> **Decision on submission sample ☺**

Dear Dr Sun,

Thank you for submitting your manuscript to Transportation Research Part B. I have completed the review of your manuscript and a summary is appended below. All the reviewers recommend reconsideration of your paper following a **major revision**. I invite you to resubmit your manuscript after addressing all the reviewers' comments very carefully and in full.

When resubmitting your manuscript, please carefully consider all issues mentioned in the reviewers' comments, outline every change made point by point, and provide suitable rebuttals for any comments not addressed.

To submit your revised manuscript, please log in as an author at https://www.editorialmanager.com/trb/, and navigate to the "Submissions Needing Revision" folder.

Transportation Research Part B values your contribution and I look forward to receiving your revised manuscript by **Jul 14, 2020**.

Kind regards, Associate Editor, Transportation Research Part B

1.4 Where to publish your work

➢ **Author Response to the Comments of Editors and Reviewers**

Dear *Dr. Editor*,

Enclosed is the revised paper (changes are highlighted), "Title of the manuscript". We appreciate your helpful comments and those of the reviewers.

We have made revisions based on the comments/suggestions of Reviewers I and II. The comments of each reviewer are numbered below, with our response (clarifications and changes) following.

1.4 Where to publish your work

➢ **Author Response to the Comments of Editors and Reviewers**

Reviewer I:

1. *There is little discussion of XXX*

We agree with Reviewers I and II that the section on *XXX* was too abbreviated. Therefore, we have added a paragraph that highlights *XXX* (paragraph *33*).

2. *Could you comment on XXX*

We have added a sentence to paragraph *9* in Methods/Materials that comments on *XXX*

Thank you again for your helpful comments. Please let us know if any other revisions are required.

Regards,

Corresponding Author

1.4 Where to publish your work

> **Letter of Acceptance sample**

I am very pleased to inform you that your manuscript has been accepted for publication in the IEEE Transactions on CSVT. Instructions for preparing the final manuscript and supporting documents are available at URL:http://tcsvt.polito.it/accept.html

Please upload all necessary items before July 10, 2020. Postponement will cause your paper to be removed from the list awaiting publication.
Payment of overlength charge for papers more than nine (9) pages long in two-column format is mandatory. Transactions Papers are strictly limited to fourteen (14) pages in two-column format.

I would like to remind you that references are very important in journal articles. I therefore invite you to update your references with the most recently available citations.

1.4 Where to publish your work

➤ **Letter of Acceptance sample-continued**

The following wording must appear on the first page of all PDF's when a final paper is submitted:

Copyright (c) 2011 IEEE. Personal use of this material is permitted. However, permission to use this material for any other purposes must be obtained from the IEEE by sending an email to pubs-permissions@ieee.org.

Thank you for contributing to the Transactions on CSVT.

Hamid Gharavi

Editor-in-Chief
IEEE Transactions on Circuits and Systems for Video Technology

1.4 Where to publish your work

➢ **Letter of Proof sample**

Dear Dr. XXX,

 The proof for your article, XXX, is ready for your review. Please connect to the following URL to retrieve your proof:
URL: XXX
If you have trouble accessing your proof site, please make sure that your browser's security setting utilizes 128-bit SSL as it is necessary for access to your proof.
If you have any problems or questions regarding this proof, please contact your IEEE staff editor by replying to this message.

XXX
Associate Editor,
Transactions on XXX

1.4 Where to publish your work

> **Letter of Inquiry sample**

Dear Dr. XXX,

Recently, we checked the status of our manuscript " XXX" (No. XXX) submitted to SMCC on March 22, 2020, and found that the review record remained "Awaiting Reviewer Assignment". We are sending this e-mail to inquiry the status of the manuscript. Your acknowledgement will be highly appreciated.

Thank you.

Best regards,

XXX on behalf of all authors

Do original and innovative research

Editors and reviewers are looking for **original and innovative research** that will add to the field of study; keys are:

> For research-based papers, ensure that you have enough numbers to justify sound statistical conclusions

> For a larger study, it may be better to produce one important research paper, rather than a number of average incremental papers

Proofread before Submitting

- ✓ Are terms used consistently throughout?

- ✓ Do numbers in abstract match numbers in text and tables?

- ✓ Do citations in text match references?

- ✓ Are Syntax and Grammar acceptable?

You need to know about reviewers

- In general, they are **very busy**, which means that they only have limited time to read your **Title+Abstract+Conclusions+Figures/Tables**

- If these are **not convincing**, the submission of your manuscript is very likely to be killed ☹

- If these are interesting, the reviewers will go to your **Methodology+Experimental Results**, to see if there is anything significant

One hint: Do cite state-of-the-art references,
also potential reviewers' own research papers

Getting the Reviews of Your Paper

> "The reviewer is always right." (whether they are or not!)

> Don't respond quickly. Digest reviews.

If your paper was rejected…

- Was it sent out for review?
  If not, consider changing
  type of journal

- If reviews don't suggest
  changes, send it out quickly
  to another journal

- The 3 journal rule.

Most papers can be much improved by more work on them. *When we are rejected*, we are forced to do that.

Vincent Calcagno,
French Institute for Agricultural Research

REJECTED

We regret to inform you that your paper has not been accepted

The last thing you may know…

Please remember the reviewer is a typical reader

- **Accept**
- **Minor Revision**
- **Major Revision**
- **Reject**

The last thing you may know…

This might happen as well :-)

- Italian-American physicist, Enrico Fermi, his paper "Beta Radioactivity Theory" was rejected by 《Nature》, but this work make him won the 1938 Nobel Prize in Physics!

The theory is too far away from reality,
the readers won't be interested

The last thing you may know…

So far, there are **39** papers were rejected from prestige journals, but they won Nobel Prizes in the end !

编号	科学家	被忍的研究	拿诺奖情况	肇事期刊
1	维尔施泰特	叶绿素等植物色素	1915年化学奖	Berichte of the German Chemical Society
2	费米	弱相互作用理论	1933年物理奖	Nature
3	克雷布斯	柠檬酸循环	1937年生理学或医学奖	Nature
4	蒂塞利乌斯	蛋白酶的电泳	1948年化学奖	未知的生化期刊
5	汤川秀树	介子	1949年物理奖	Nature, Physical Review
6	切伦科夫	切伦科夫辐射	1958年物理奖	Nature
7	奥乔亚	RNA的合成机制	1959年生理学或医学奖	J. Am. Chem. Soc.
8	科恩伯格	DNA的酶合成	1959年生理学或医学奖	Journal of Biological Chemistry
9	伯内特	抗体反应	1960年生理学或医学奖	英国某科学期刊
10	魏格纳	物理学中的基本对称性	1963年物理奖	American Journal of Mathematics
11	汤斯	发明激光	1964年物理奖	Physical Review Letters
12	盖尔曼	强相互作用理论	1969年物理奖	Physical Review
13	利普斯科姆	硼烷结构的研究	1976年化学奖	J. Am. Chem. Soc.
14	布隆伯格	急性病毒性肝炎的抗体	1976年生理学或医学奖	未知
15	雅洛	放射免疫疗法	1977年生理学或医学奖	Science
16	布朗	有机硼烷的合成	1979年化学奖	J. Am. Chem. Soc.
17	陶布	金属配位化合物电子转移	1983年化学奖	Chemical Review
18	钱德拉塞卡	恒星变黑洞的质量极限	1983年物理奖	爱丁顿（不是一本期刊）
19	福勒	元素的核合成机制	1983年物理奖	未知
20	米尔斯坦	人体白细胞分化抗原	1984年生理学或医学奖	Journal of Experimental Medicine
21	冯·克利青	量子霍尔效应	1985年物理奖	Physical Review Letters（先拒后发）
22	波拉尼	红外激光器的相关研究	1986年化学奖	Physical Review Letters
23	科恩	生长因子	1986年生理学或医学奖	未知
24	宾宁和罗雷尔	原子力显微镜	1986年物理奖	未知
25	米歇尔	光合作用反应中心的三维	1988年化学奖	Nature
26	切赫	RNA的生物催化作用	1989年化学奖	Nature（先拒后发）
27	恩斯特	磁共振	1991年物理奖	Journal of Chemical Physics拒了两次
28	穆利斯	PCR技术	1993年化学奖	Nature, Science
29	史密斯	定点突变	1993年化学奖	Cell
30	李、奥谢罗夫和理查德森	He-3超流现象	1993年物理奖	Physical Review Letter
31	罗德贝尔	高度敏感的腺苷酸环化酶	1994年生理学或医学奖	Analytical Biochemistry
32	博耶	ATP	1997年化学奖	Journal of Biological Chemistry
33	伏契哥特	一氧化氮的生理学作用	1998年生理学或医学奖	Nature（先拒后发）
34	克勒默	半导体	2000年物理奖	Applied Physics Letters
35	哈特韦尔	细胞周期中的关键调节因	2001年生理学或医学奖	Nature
36	菠色	量子统计	2001年相关实验获得物理奖	Philosophical magazine
37	劳特伯	磁共振成像	2003年生理学或医学奖	Nature（先拒后发）
38	丹·谢赫特曼	准晶体	2011年化学奖	Physical Review Letter
39	希格斯	希格斯玻色子	2013年物理奖	Physics Letters

The last thing you may know…

- So, one message is that **don't get frustrated** if your manuscript is rejected somewhere, you need to go on working on the manuscript and resubmitting your work to somewhere else until it is accepted!

- All is not gold that glitters, but gold will glitter forever
  闪光的东西并不一定是金子，但是金子总会发光的

Peer Review

If you are the reviewer…

Peer Review

- Assume there is some poor graduate student on the other end who did all the work, and whose confidence and career depend on your critique.

- Tone matters!
  - E.g. "The authors should delete table 5; not only is it completely irrelevant, but it also reveals their utter lack of statistical understanding."
  - vs. "Table 5 contains unnecessary information (for example…), and a Pearson's correlation coefficient may not be appropriate here. The authors should consider revising or omitting the table."

Peer Review

- Avoid criticizing the authors! Criticize the work.

- Avoid generalizations; point out specific errors.

- Use positive instead of negative language where possible: "The paper is poorly written." vs. "The writing and presentation could be improved. For example…"

- Avoid "lecturing" to the authors.

Peer Review

1. Scan the abstract.

2. Jump to the data: review the tables and figures first.

  Draw your own conclusions.

  Do the tables and figures stand on their own?

  Are there any obvious statistical errors?

  Is there repetitive information?

3. Read the paper once through.

  Do the authors conclusions match their data?

  Is the paper clearly written, or did you struggle to get through it? You should not have to struggle!

  Is the length of the paper justified given the amount of new information that the data provide?

Peer Review

4. Read the introduction carefully.

- Is it three paragraphs long (or close)? Does it roughly follow: known-->unknown-->research question/hypothesis?

- Is there detailed information about *what was done* that belongs in the methods?

- Is there information about *what was found?* If so, it should be moved to the results.

- Is there distracting information about previous studies or mechanisms that are not directly relevant to the hypothesis being tested. If so, it should be moved to the discussion.

- Do the authors tell you what gaps in the literature they are trying to fill in?

Peer Review

5. Read the methods carefully.

- Scan this section to find answers to your questions about the data.

- Were things measured objectively or subjectively? What instruments were used?

- Are there flaws in the study design, such as no control group?

- Read the statistics section carefully.

Peer Review

6. Read the results carefully.

- Read this section with the tables and figures in front of you.
- Does each section roughly correspond to one table or figure?
- Do the authors summarize the main trends and themes from the table, or do they just repeat what is in the tables?
- If there are graphs, do the authors give precise numerical values in the text if it is not given in the graph?
- Are the authors honest or do they try to draw your eye to what they want you to see??
- Do the authors over-interpret statistical significance, by ignoring the fact that the magnitude is small or by ignoring the fact that they have done multiple subgroup analyses?
- Is this section unnecessarily long?

Peer Review

7. Look at each table and figure.

- Did the authors choose the correct statistics?
- Is there repetitive information in a single table, such as both p-values and standard errors?
- Are there multiple tables or figures that tell the same story? For example, Table 2 gives parameter estimates from a logistic regression model and Table 3 gives odds ratios from the same model and Figure 1 plots the odds ratio confidence intervals. Or Table 1 gives the mean values for two groups and indicates statistical significance from a ttest and Table 2 gives confidence intervals for the differences in means for the same data.
- Did the authors adjust for confounding and consider interactions?
- Is there evidence of data dredging or purposefully omitting data?
- Are any graphs misleading, e.g. through manipulation of area or axes?
- Is the "treatment" group always compared with a proper control/placebo group?
- Are there inconsistencies in the data they present from one table to the next?
- Did the authors make transcribing errors when going from the data in tables/results to the abstract?

Peer Review

8. Read the discussion carefully.

- Does the first paragraph succinctly and clearly tell you what was found and what is new?

- Are the authors' conclusions justified or are they overreaching?

- Do they clearly distinguish hypothesis-driven conclusions and exploratory conclusions?

- Is the writing clear and to the point (active voice!)? Is there some sense of order and structure or are they just rambling on aimlessly?

- Could the discussion be shortened?

- Did they address the limitations you care about? (as opposed to any old irrelevant limitations that they threw in just to have some)

- Are the references that they cite current?

- Have they omitted key references?

Peer Review

Comments to authors:

1. Start with a one-paragraph "general overview."

- **State what you think is the major finding and importance of the work. Give 2-3 positive, encouraging statements about the work**. If the methods are crap, is the writing nice, for example? Is the research question particularly interesting or novel? (E.g., "This is an interesting manuscript, with several strengths." "The authors should be commended for …" "The finding that …. is important.)

- **State 1-2 major limitations** (if there are any) to the study design, writing/presentation, or conclusions. (E.g., "The study is limited because there is no control group." "The overall writing or presentation needs improvement." "The authors may have over-stated their findings." "The paper provides only weak evidence for its conclusions." "The study is exploratory, not hypothesis-driven.")

- **Do <u>not</u> tell the authors your overall recommendation** (rejection, acceptance).

Peer Review

Comments to authors:

2. In a *numbered* list, give 5-15 specific criticisms/suggestions for revision. The number will often correspond to your recommendation (give the most if you are recommending "opportunity for revision.")

- Point out specific mistakes.
- List the issues that you found in your review.
- Give specific recommendations for revision.

Peer Review

Comments to editors:

1. Fill out journal "grading sheet."

    Impact of Research
    TOP 10%   __
    TOP 25%   __
    Top 50%   __
    Bottom 50% _X_
    Bottom 25% __
    Bottom 10% __

    Originality of Results…
    Methodology and Data Quality…
    OVERALL MANUSCRIPT RANK…

Peer Review

Comments to editors:

1. Fill out journal "grading sheet."

2. Choose your recommendation:
    Reject (~33%)
    Reject with opportunity to revise (~33%)
    Accept with minor revision (~33%)
    Accept

3. Give a succinct overall statement to the editors that justifies your ranking. State the papers major strengths and weakness. (you can borrow material from your comments to the authors.)

Peer Review

The first one you do will take a long time. You will get progressively faster at these as you go along.

Review unto others as you would want to be reviewed!

Peer Review

REVIEWER ≠ EDITOR!!!

- Do not be spend your time nit-picking. Focus on big-picture issues.

- If the manuscript has a lot of copy-editing errors, point this out in a general way and give one or two examples, e.g. "The manuscript contains typos, such as…"

工欲善其事，必先利其器

Outline

1 Writing tools

1. In general, the pdf file is required for almost all journals and conferences.

Portable Document Format (PDF) is a file format used to present documents in a manner independent of application software, hardware and operating systems.

2. To produce pdf file, laTex/tex and word are preferred.

LaTeX is a word processor and a document markup language. It is distinguished from typical word processors such as **Microsoft Word** and **Apple Pages** in that the writer uses **plain text** as opposed to **formatted text**, relying on markup tagging conventions to define the general structure of a document (such as article, book, and letter), to stylize text throughout a document (such as bold and italic), and to add citations and cross-referencing.

1 Writing tools

Requirement of IEEE (TCSVT)

A. **Submission of a Transactions Paper**

1. Only electronic submissions will be considered. Detailed instructions are posted on the website of the TRANSACTIONS at http://tcsvt.polito.it. Prospective authors should be familiar with the General Information for Authors posted on the TRANSACTIONS website. In case of hardship, an author may ask for help by sending an e-mail to tcsvt@tcad.polito.it

2. All papers must be clearly written and well organized. The manuscript should state the significance of the problem in the Introduction. The paper should be motivated by a clear discussion of the relationship of the paper to the most relevant prior work.

3. The total length of a manuscript cannot exceed fourteen (14) pages when printed using IEEE two-column format including figures (approximately 42 double-spaced typewritten pages of 8 1/2 11). (Note: Over-length charges begin with the 10th page. See details below.) The style files for LaTeX and Word can be downloaded from http://www.ieee.org/pubs/authors.html. The final submission format must be PDF.

4. Originals for the illustrations should be ready to be submitted immediately upon acceptance of the TRANSACTIONS Paper.

5. See instructions on the web site for completing the IEEE copyright form for the manuscript.

6. If the manuscript has been presented, published, or submitted for publication elsewhere, please so inform the Editor-in-Chief in the comment form. Our primary objective is to publish technical material not available elsewhere, but on occasion we publish papers of unusual merit which have appeared or will appear before other audiences.

1.1 LaTeX

- ✓ **Installation**
- ✓ **Starting a document**
- ✓ **Sections**
- ✓ **Equations**
- ✓ **Figures**
- ✓ **Tables**
- ✓ **Hyperlinks**
- ✓ **More**
- ✓ **Bibliography Management**
- ✓ **Resources**

1.1 LaTeX-Installation

- **TEX Live Installation**

A complete TEX system to be installed to disk. Home page:
http://tug.org/texlive/

First stage of Windows .exe installer

1.1 LaTeX-Installation

TEX Live Installation

1.1 LaTex

- A small example:

> Cartesian closed categories and the price of eggs *
> Jane Doe
> September 1994
> Hello world!

In most **word processing** systems, you have to **decide**:

- Times New Roman 18pts for title
- Times Italic 12pts for author etc.
- Center the header
- Page width
- … …

1.1 LaTeX

- LaTeX's basic ideas:

- Leave document design to document designers

- Let authors get on with writing documents

```
\documentclass{article}  %This document is an article.
\title{Cartesian closed categories and the price of
eggs}  % Its title is Cartesian closed categories and the price of eggs.
\author{Jane Doe}  %Its author is Jane Doe.
\date{September 1994}  %It was written in September 1994.
\begin{document}
  \maketitle
  Hello world!  %The document consists of a title followed by the text
                        Hello world!
\end{document}
```

1.1 LaTeX

Laws on MS Word

1. Likelihood of a crash is directly proportional to the importance of a document.

2. Likelihood of a crash is inversely proportional to the time left before its deadline.

3. likelihood of a crash is directly proportional to the duration since you last saved.

4. likelihood of you throwing your computer out of the window is directly proportional to the number of times Clippy pops up.

1.1 LaTeX

Pros	Cons
portable	compile, debug, view, edit
write logically	not WYSIWYG
mathematical equation	
easy control	unintelligent
extremely powerful	steep learning curve

1.1 LaTeX

TeXworks

1.1 LaTeX

Compilation

1.1 LaTeX

Preamble:

- \documentclass[options]{class} (e.g. \documentclass[10pt,a4paper]{article})

Common Document Classes:
article: scientific journals, presentations, short reports, invitations…
IEEEtran: IEEE Transactions format
proc: articles with proceedings based on article class
book: real book
slides: for slides ……

- \usepackage[options]{class} (e.g. \usepackage{amsmath})

Common Packages:
amsmath: additional mathematical typesetting
amssymb: mathematical sysmbols
graphics: provide graphics support
hyperref: navigation support for PDF documents (clickable reference etc.)
… …

1.1 LaTeX

- \begin{document}
- \end{document}

```
\documentclass{article}  %This document is an article.
\title{Cartesian closed categories and the price of
eggs}  % Its title is Cartesian closed categories and the price of eggs.
\author{Jane Doe}  %Its author is Jane Doe.
\date{September 1994}  %It was written in September 1994.
\begin{document}
  \maketitle
  Hello world!  %The document consists of a title followed by the text
                        Hello world!

\end{document}
```

Cartesian closed categories and the price of eggs

Jane Doe

September 1994

Hello world!

1.1 LaTeX-sections

Structure your document using sections in LaTeX:

When writing a paper, it's necessary to structure the content into logic units.

To achieve this, LaTeX offers us commands to generate section headings and number them automatically.

The commands to create section headings are straightforward:

➢ Sectioning elements (sections, subsections, etc.)

\section{ }

\subsection{ }

\subsubsection{ }

1.1 LaTeX-sections

\section & \subsection

```
\documentclass{article}
\title{Cartesian closed categories and the price of
eggs}
\author{Jane Doe}
\date{September 1994}
\begin{document}
  \maketitle
  \section{Introduction}
   Hello world!\\   %line break
     \subsection{Literature Review}
       Hello world!
\end{document}
```

Cartesian closed categories and the price of eggs

Jane Doe

September 1994

1 Introduction

Hello world!

1.1 Literature Review

Hello world!

1.1 LaTeX-packages

- *Packages* add new functions to LaTeX

- All *packages* must be included in the *preamble*

- Packages add features such as support for pictures, links and bibliography

\documentclass{article}

\begin{document}

\begin{equation}

  f(x) = x^2

\end{equation}

\end{document}

Output: f(x)=x2   (1)

1.1 LaTeX-Equations

1. ## Basic elements

$$a_0^2$$

Symbol	Command
$\sin x$	\sin x
$\cos x$	\cos x
$\tan x$	\tan x
$\cot x$	\cot x
$\sec x$	\sec x
$\csc x$	\csc x

Symbol	Command
$\log x$	\log{x}
$\log_a b$	\log_a{b}
$\sqrt{x}$	\sqrtx}
$\sqrt[n]{x}$	\sqrt[n]{x}
$\frac{u(x)}{v(x)}$	\frac{u(x)}{v(x)}

Symbol	Command
$\int f(x)dx$	\int f(x) dx
$\int_a^b f(x)x$	\int_a^b f(x) x
$\int_D f(x)dx$	\int_D f(x) dx
$\iint f(x,y)dxdy$	\iint f(x,y) dx dy
$\iiint f(x,y,z)dxdydz$	\iiint f(x,y,z) dx dy dz
$\oint_C Fds$	\oint_C F ds

Symbol	Command
$\begin{matrix}1 & 0 \\ 1 & 0\end{matrix}$	\begin{matrix}1&0\\ 1&0\end{matrix}
$\begin{bmatrix}1 & 0 \\ 1 & 0\end{bmatrix}$	\begin{bmatrix}1&0\\ 1&0\end{bmatrix}

LaTeX Math Symbols - A glossary https://www.latex-tutorial.com/symbols/math-symbols/

1.1 LaTeX-Equations

2. Inline math

surround it with dollar signs '$'

```
Input:…
        This formula $f(x)=x^2$ is an example
    …
Output: This formula f(x) = x² is an example.
```

Output: This formula $f(x) = x^2$ is an example.

3. equation environment

```
            \documentclass{article}
            \usepackage{amsmath}
            \begin{document}
            \begin{equation*}                        1+2=3
Input:        1 + 2 = 3          Output:  1=3-2
            \end{equation*}
            \begin{equation*}
              1 = 3 - 2
            \end{equation*}
            \end{document}
```

1.1 LaTeX-Equations

- LaTeX is a powerful tool to typeset math
- Embed formulas in your text by surrounding them with dollar signs $
- The equation environment is used to typeset one formula
- The align environment will align formulas at the ampersand & symbol
- Single formulas must be seperated with two backslashes \\
- Use the matrix environment to typeset matrices
- Scale parentheses with \left(\right) automatically
- All mathematical expressions have a unique command with unique syntax
- Notable examples are:

    \int^a_b for integral symbol

    \frac{u}{v} for fractions

    \sqrt{x} for square roots

- Characters for the greek alphabet and other mathematical symbols such as \lambda

1.1 LaTeX-Figures

- Figure environment:

```
\begin{figure}[placement specifier]
... figure contents ...
\end{figure}
```

Specifier
- h   place the float here
- t   position at the top of the page
- b   position at the bottom of the page
- p   put on a special page for floats only
- !   override internal parameters for determining 'good' float position
- H   place the float at precisely the location in Latex code. Require the float package. (i.e. `\usepackage{float}`)

1.1 LaTeX-Figures

Input:

```
\documentclass{article}
\usepackage{graphicx}
\begin{document}
\begin{figure}
\includegraphics[width=5cm]{image.jpg}
  \caption{A Pic in NUAA.}%add caption
\end{figure}
\end{document}
```

Output:

Figure 1: A Pic in NUAA.

\includegraphics[...]{}
- width=xx
- height=xx
- keepaspectratio
- scale=xx
- angle=xx
- trim=l b r t (crop the imported image by l from the left,b from the bottom, r from the right, and t from the top, meanwhile set clip=true)
- page=x (for pdf with multiple pages)
- resolution=x (dpi)

1.1 LaTeX-Figures

- ◆ Multiple images/subfigures

Input:

```
… …
\usepackage{graphicx}
\usepackage{subcaption}
\begin{document}
\begin{figure}[h!]
  \centering
  \begin{subfigure}[b]{0.2\linewidth}
    \includegraphics[width=\linewidth]{image.jpg}
     \caption{First}
  \end{subfigure}
  \begin{subfigure}[b]{0.2\linewidth}
    \includegraphics[width=\linewidth]{image.jpg}
    \caption{Second}
  \end{subfigure}
  \begin{subfigure}[b]{0.2\linewidth}
    \includegraphics[width=\linewidth]{image.jpg}
    \caption{Third}
  \end{subfigure}
  \begin{subfigure}[b]{0.5\linewidth}
    \includegraphics[width=\linewidth]{image.jpg}
    \caption{Fourth}
  \end{subfigure}
  \caption{A Pic in NUAA, Multiple times.}
\end{figure}
\end{document}
```

Output:

(a) First   (b) Second   (c) Third

(d) Fourth

Figure 1: A Pic in NUAA, Multiple times.

1.1 LaTeX-Figures

- Use the graphicx package and figure environment to embed pictures

- Pictures will be numbered automatically

- Change the width of your image by using \includegraphics[width=\linewidth]{ }

- Refer to pictures in your document by setting a \label and using the \ref tag

- Set the position of your image by adding a float option such as [h!]

- If you want to show multiple figures next to each other, use the subcaption package and the subfigure environment

1.1 LaTeX-Tables

- &(column seperator), \\ (row seperator)

Input:

```
\documentclass{article}
\begin{document}
\begin{table}[h!]
  \begin{center}
  \caption{Your first table.}
  \label{tab:table1}
  \begin{tabular}{l|c|r}  % <-- Alignments: 1st
column left, 2nd middle and 3rd right, with vertical lines in between
    \textbf{Value 1} & \textbf{Value 2} &
\textbf{Value 3}\\
    $\alpha$ & $\beta$ & $\gamma$ \\
    \hline
    1 & 1110.1 & a\\
    2 & 10.1 & b\\
    3 & 23.113231 & c\\
  \end{tabular}
  \end{center}
\end{table}
\end{document}
```

Output:

Table 1: Your first table.

Value 1	Value 2	Value 3
α	β	γ
1	1110.1	a
2	10.1	b
3	23.113231	c

1.1 LaTeX-Tables

Excel2LATEX

1.1 LaTeX-Tables

- LaTeX offers the table and tabular environment for table creation
- The table environment acts like a wrapper for the tabular similar to the figure environment
- Alignment and vertical separators are passed as an argument to the tabular environment (e.g. \begin{tabular}{l|c||r})
- It's possible to align the content left (l), centered (c) and right (r), where the number of alignment operators has to match the desired number of columns
- The columns can be seperated by adding | in between the alignment operators
- Rows can be seperated using the \hline command and columns using the ampersand & symbol
- The newline \\ operator indicates the end of a row
- It's possible to refer to tables using \ref and \label
- Combine multiple rows and columns with the multirow package
- Display your tables in landscape using the rotating package

1.1 LaTeX-hyerlinks

- Add the hyperref package to your preamble
- Links will show up in a colored box which will be invisible when you print it.
- Use \href{URL}{DESCRIPTION} to add a link with description
- Use \url{URL} to add a link without a description

\documentclass{article} % or any other documentclass
\usepackage{hyperref}
\begin{document}
This is my link: \href{http://www.latex-tutorial.com}{LaTeX-Tutorial}.
\end{document}

This is my link: LaTeX-Tutorial.

1.1 LaTeX-hyerlinks

- Add the hyperref package to your preamble
- Links will show up in a colored box which will be invisible when you print it.
- Use \href{URL}{DESCRIPTION} to add a link with description
- Use \url{URL} to add a link without a description

\documentclass{article} % or any other documentclass

\usepackage{hyperref}

\begin{document}

You can also link to bare URLs without an additional description:
\url{http://www.latex-tutorial.com}

\end{document}

You can also link to bare URLs without an additional description: http://www.
latex-tutorial.com

1.1 LaTeX-more

◆ LaTeX will use the section headings to create the *table of contents* and there are commands to create a *list of figures* and a *list of tables* as well.

\documentclass{article}

\begin{document}

\tableofcontents

\newpage

\section{Section}

Dummy text

\subsection{Subsection}

Dummy text

\end{document}

Contents

1.1 LaTeX-more

- The generation of a list of figures and tables works the same way

  \begin{document}

  ...

  \begin{figure}

    \caption{Dummy figure}

  \end{figure}

  \begin{table}

    \caption{Dummy table}

  \end{table}

  ...

  \begin{appendix}

    \listoffigures

    \listoftables

  \end{appendix}

  \end{document}

List of Figures

List of Tables

1.1 LaTeX-Bibliography Management

Finding .bib file

1.1 LaTeX-Bibliography Management

- ◆ Finding .bib file

```
@article{SS2018,
title   = "Complementary strengths of airlines under network disruptions",
journal = "Safety Science",\
volume  = "103",
number  = "Supplement C",
pages   = "76 - 87",
year    = "2018",
issn    = "0925-7535",
doi     = "https://doi.org/10.1016/j.ssci.2017.11.010",
url     =
"http://www.sciencedirect.com/science/article/pii/S0925753517308676",
author  = "Xiaoqian Sun and Sebastian Wandelt",
keywords= "Airline disruption, Network robustness, Air transportation"}
```

1.1 LaTeX-Bibliography Management

- Compile with BibTex

Way: run bibtex manually
① pdflatex example.tex
② bibtex example
③ pdflatex example.tex
④ pdflatex example.tex

Explanation:
1. tell bibtex what literature we cited in our paper
2. translate .bib file into proper output
3. merge the reference section with our LaTeX document
4. assign successive numbers in the last step

1.1 LaTeX-Bibliography Management

- **BibTeX Styles:**

Abbrv, Alpha, Apalike, IEEEtr, Plain

References Abbrv

[1] J. Doe. Title. *Journal*, 2017.

[2] J. Doe. *The Book without Title*. Dummy Publisher, 2100.

[3] J. Doe. *The Book without Title*, pages 100–200. Dummy Publisher, 2100.

[4] Intel. 8259a - programmable interrupt controller. http://bochs.sourceforge.net/techspec/intel-8259a-pic.pdf.gz, Dec 1988. Accessed on 2012-11-11.

References Alpha

[Doe, 2017] Doe, J. (2017). Title. *Journal*.

[Doe, 2100a] Doe, J. (2100a). *The Book without Title*. Dummy Publisher.

[Doe, 2100b] Doe, J. (2100b). *The Book without Title*, pages 100–200. Dummy Publisher.

[Intel, 1988] Intel (1988). 8259a - programmable interrupt controller. http://bochs.sourceforge.net/techspec/intel-8259a-pic.gz. Accessed on 2012-11-11.

1.1 LaTeX-Bibliography Management

- **BibTeX Styles:**

  Abbrv, Alpha, Apalike, IEEEtr, Plain

References IEEEtr

[1] J. Doe, *The Book without Title*. Dummy Publisher, 2100.

[2] Intel, "8259a - programmable interrupt controller." `http://bochs.sourceforge.net/techspec/intel-8259a-pic.pdf.gz`, Dec 1988. Accessed on 2012-11-11.

[3] J. Doe, "Title," *Journal*, 2017.

[4] J. Doe, *The Book without Title*, pp. 100–200. Dummy Publisher. 2100.

References Plain

[1] John Doe. Title. *Journal*, 2017.

[2] John Doe. *The Book without Title*. Dummy Publisher, 2100.

[3] John Doe. *The Book without Title*, pages 100–200. Dummy Publisher, 2100.

[4] Intel. 8259a - programmable interrupt controller. `http://bochs.sourceforge.net/techspec/intel-8259a-pic.gz`, Dec 1988. Accessed on 2012-11-11.

1.1 LaTeX-Bibliography Management

➢ Generate a bibliography with BibTeX

➢ First define a .bib file using: \bibliography{BIB_FILE_NAME}

➢ For BibTeX put the \bibliography statement in your document

➢ BibTeX uses the \bibliographystyle command to set the citation style

➢ BibTeX uses the \cite command

1.1 LaTeX-Resources

Tools:

- MikTeX — (http://miktex.org/) latex distribution + package manager

- TeXShop — (http://www.uoregon.edu/ koch/texshop/) IDE for latex on Mac (from Krzysztof et. al)

- Kile — (http://kile.sourceforge.net/) IDE for linux

Guide Books

- LaTeX—(https://en.wikibooks.org/wiki/LaTeX) a guide to the LaTeX markup language

- LaTeX-Tutorial.com—(https://www.latex-tutorial.com/) tutorial for quick start

- LATEX Project—(http://www.latex-project.org/) links to documentation, information about latex

Übung macht den Meister

Practice makes perfect

Outline

1.1 **What** is scientific writing?

1.2 **Why** it is important?

1.3 **How** to improve it?

1.4 **Where** to publish it?

Final Project

A summary of minimum 2 pages for one of the three papers:
(A4 format, 12 pounds, single line space)

1. What is the problem to be addressed?
2. What motivates interest? Why is it hard? Why is it important?
3. What's the new idea here?
4. What are the good points of the paper according to our lecture?
5. What can be further improved according to our lecture?

Final summary should be sent to **kxxz2021@126.com**
before 7th November (23:59, Sunday)
with the following name format **Name_StudentID**

Paper list

1. Xiaoqian Sun et al., Vaccination Passports: Challenges for a Future of Air Transportation. Transport Policy 110, pp. 394-401, 2021
http://dx.doi.org/10.1016/j.tranpol.2021.06.018

2. Sebastian Wandelt et al., Estimation and improvement of transportation network robustness by exploiting communities. Reliability Engineering & System Safety 206, pp. 107307, 2021
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http://dx.doi.org/10.1016/j.trc.2021.103218

Thank you very much!