Good and Bad Manuscripts

Lecture 2

Dear author, let us inform you that your paper …

The most nervous moment for any author is the 5 seconds when you open your email box and see a letter like this:

“notification” is a very neutral term, so you really need to read the message body. Usually “notification” is used when the paper in not accepted (at least at C-B-A-A*) conferences. Often PC members sends clear “accepted” message:

So how to write a manuscript that will be accepted?

Ask a right question!

Is my manuscript structured correctly?

Is my research question being answered adequately?

How can I provide a good peer review report?

These are some of the questions that researchers frequently ask themselves no matter what part of the publishing journey they are at.

Ideal path

1. prepare prior to starting your research
2. structure your manuscript and what to include in each section
3. get the most out of your tables and figures so that they clearly represent your most important results.

Prepare before start

A good research paper starts LONG before you start writing

1) **Identify a hot topic** and background reading (= ask your supervisor + read the thematic blogs)
2) **Shape a study** (= plan a research to clarify that hot topic)
3) **Keep references** to the background reading (=use reference managers)
4) Select **international peer-reviewed** conferences to present possible outcomes of the study (= don't start with a Scopus journal!)

Research field (1)

should be of interest to you, otherwise it is **a lot of constant pain** and often questions like “Why did I decide to do that?”

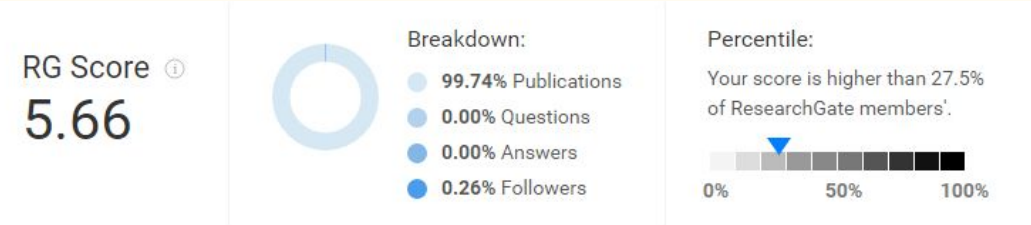
1) Read thematic blogs, Gartner’s reports, reviews, books, dig into and find something like *“the possible direction of the research could be …”* and think “Is this a place for me to start?”
2) Find top researchers in the field (ask Google, e.g. *“research schools XYZ_topic”*)
3) Identify important journals, conferences, special issues (usually special issues of a journal are dedicated to a specific hot topic in the field)
4) Get connected to those top researchers (ResearchGate, Google Scholar, Mendeley, Academia.edu, LinkedIn). Facebook? Don’t think is a good idea, but you can try.

Research field (2)

5) Attend thematic meetups (use MeetUp app),

6) Attend the conferences you can reach (use conferences list at (https://www.allconferencealert.com/country_event.php?country=Germany) and listen to ideas

7) Ask questions in ResearchGate, Academia.edu, etc. The rating of an author is calculated there as a function of author's responses to questions regarding their topics of interest



Shape a study

You must have a good study design to get publishable results.

Shape a study (2)

What is your **hypothesis** or research question?

Shape a study (3)

What are the aims of your research?

Shape a study (4)

What are the best methods for achieving your aims?

Shape a study (5)

Do you have the necessary resources to carry out your methods?

computing resources
time
human resources
data for analysis

Shape a study (6)

Which positive and negative controls will you use?

Shape a study (7)

Do you have the required ethics and regulatory permissions?

Consent to participate in a research

Approval from ethics review board
(e.g. to test on animals, to register the clinical trial etc.)

Shape a study (8, last)

evidence, evidence, evidence

statistics, statistics, statistics

Will your experiment have enough statistical power to give useful results?

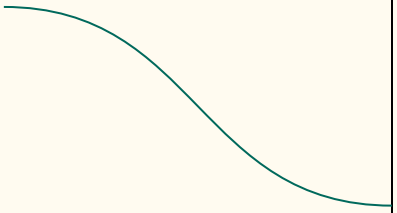
Is your sample size large enough to draw valid conclusions?

Which statistical tests will you use for your analysis?

If you are not sure, consult a statistician; they can provide you with expert advice that may save you a lot of time.

Keep references

BibTeX
EndNote
Mendeley
Papers
:RefWords
Zotero
ReadCube



```
@article{ahu61,
  author={Arrow, Kenneth J. and Leonid Hurwicz and Hirofumi Uzawa},
  title={Constraint qualifications in maximization problems},
  journal={Naval Research Logistics Quarterly},
  volume={8},
  year=1961,
  pages={175-191}
}
```

Make sure you follow the formatting instructions according to journal style

Types of journal papers

Original full (unpublished) research papers

Reviews

Short papers or Letters

Case Studies

Methodologies or Methods

Original (full) research papers

Includes full Introduction, Methods, Results, and Discussion sections.

The most **neglected** part of an original research article is **Related Work** section.

Often the absence of the Related Work section automatically leads to rejection.

Review Articles

Provide a comprehensive summary of research on a certain topic, and a perspective on the state of the field and where it is heading.

They are **often written by leaders in a particular discipline** after invitation from the editors of a journal

Reviews are often widely read (for example, by researchers looking for a full introduction to a field) and highly cited. Reviews commonly **cite** approximately **100 primary research articles**.

Short papers/reports or letters

Report on ongoing research

Contain some results (1 to 3 is OK)

used in highly-competitive fields or fast changing hottest emerging fields to fix a priority with successful/interesting up-to-date results

Case studies

report specific instances of interesting phenomena

used in, e.g., medicine, to report the occurrence of previously unknown or emerging pathologies

Methodologies or Methods

present a new experimental method, test or procedure.

The method described may either be completely new, or may offer a better version of an existing method.

The article should describe a demonstrable advance on what is currently available.

Structure your manuscript

Think of your readers (1)

Researchers are busy people =>

it is imperative that

research articles **are quick and easy to read**

Think of your readers (2)

Review process is always subjective =>

badly written research articles **are rejected** because

a reviewer has a headache, had a bad sleep, his/her paper was not accepted yesterday,... =>

don’t add more pain to reviewers’ lives. Think of them.

Follow IMRaD

IMRaD is a the standard structure of the body of research manuscripts

- **I**ntroduction
- **M**aterials and Methods
- **R**esults
- **D**iscussion and Conclusions

Follow IMRaD: bonus from NG

- Introduction **(the last paragraph is the structure of the paper)**
- **Related Work**
- Materials and Methods
- Results
- Discussion and Conclusions

Benefits of following IMRaD

Gives a logical flow to the content

Makes journal manuscripts consistent and easy to read

Provides a “map” so that readers can quickly find content of interest in any manuscript

Reminds authors what content should be included in an article

Writing Order

Start with

1. Materials & Methods
2. Results

Writing Order

Continue with

3. Introduction
4. Discussion
5. Conclusion

Writing Order

Conclude with

6. Title
7. Abstract

Think of your readers (3)

Tell them a story =

use the different sections of a manuscript to ‘tell a story’ about your research and its implications.

Write a “detective”. Anyone should keep interested until Conclusions sections. It works.

Title, Abstract and Keywords

Title, abstract and keywords are visible in almost all scientometric and referative bases => this is the face of your work visible to other

You must select a title that

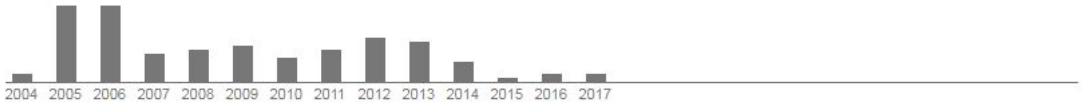
1. grabs attention,
2. accurately describes the contents of your manuscript,
3. makes people want to read further...

a title that sells

Towards a framework for agent-enabled semantic web service composition

[PDF] с сайта ermolayev.com

Авторы	Vadim Ermolayev, Natalya Keberle, Sergey Plaksin, Oleksandr Kononenko, Vagan Terziyan
Дата публикации	2004/7/1
Журнал	International Journal of Web Services Research
Том	1
Номер	3
Страницы	63
Издатель	IGI Global
Описание	Abstract The article presents the framework for agent-enabled dynamic Web service composition. The core of the methodology is the new understanding of a Web service as an agent capability having proper ontological description. It is demonstrated how diverse Web services may be composed and mediated by dynamic coalitions of software agents collaboratively performing tasks for service requestors. Middle Agent Layer is introduced to conduct service request to task transformation, agent-enabled cooperative task decomposition and performance. Discussed are the formal means to arrange agents' negotiation, to represent the semantic structure of the task-activity-service hierarchy and to assess fellow-agents' capabilities and credibility factors. Finally, it is argued that the presented formal technique is applicable to various application domains. Presented is the ...
Всего ссылок	Цитируется: 112



11 words

- Convey the **main topics** of the study
- Highlight the **importance** of the research
- Be **concise**
- **Attract** readers

Select the best

Does Vaccinating Children and Adolescents with Inactivated Influenza Virus Inhibit the Spread of Influenza in Unimmunized Residents of Rural Communities?

Influenza Vaccination of Children: A Randomized Trial

Effect of Child Influenza Vaccination on Infection Rates in Rural Communities: A Randomized Trial

Select the best

Does Vaccinating Children and Adolescents with Inactivated Influenza Virus Inhibit the Spread of Influenza in Unimmunized Residents of Rural Communities?

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Select the best

Does Vaccinating Children and Adolescents with Inactivated Influenza Virus Inhibit the Spread of Influenza in Unimmunized Residents of Rural Communities?

Influenza Vaccination of Children: A Randomized Trial

Effect of Child Influenza Vaccination on Infection Rates in Rural Communities: A Randomized Trial

Abstract

Your Abstract should answer these questions about your manuscript:

- What was done?
- Why did you do it?
- What did you find?
- Why are these findings useful and important?

Abstract

- A **summary** of the content of the journal manuscript
- A time-saving **shortcut** for busy researchers
- A **guide** to the most important parts of your manuscript's written content

Usually 250-500 words (count with your Office editor application), but may depend. Follow the restrictions of a journal.

Towards a framework for agent-enabled semantic web service composition

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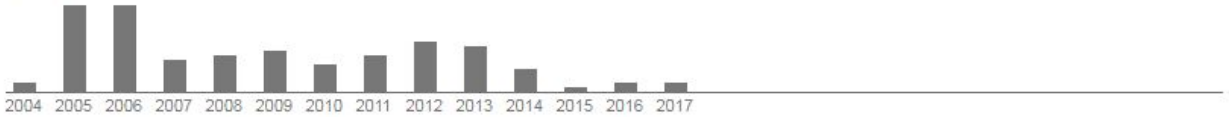


Keywords

Keywords:

- represent a field
- are specific

Keywords

use agreed terminology =>

you need to read and understand related work/background in the field =>

do not invent “a wheel”.

Keywords

Manuscript title: **Direct observation of nonlinear optics in an isolated carbon nanotube**

Poor keywords: **molecule, optics, lasers, energy lifetime**

Better keywords: **single-molecule interaction, Kerr effect, carbon nanotubes, energy level structure**

Keywords

Manuscript title: **Region-specific neuronal degeneration after okadaic acid administration**

Poor keywords: **neuron, brain, OA (an abbreviation), regional-specific neuronal degeneration, signaling**

Better keywords: **neurodegenerative diseases; CA1 region, hippocampal; okadaic acid; neurotoxins; MAP kinase signaling system; cell death**

Keywords

Manuscript title: **Increases in levels of sediment transport at former glacial-interglacial transitions**

Poor keywords: **climate change, erosion, plant effects**

Better keywords: **quaternary climate change, soil erosion, bioturbation**

Introduction

should answer the question:

“What question/problem was studied?”

- provide a background information needed to understand your study

Introduction and citations

It is possible to use citations in Introduction, but only for the purpose of refreshing minds of readers - where they can found the beginning of the story/research/theory.

Do NOT write a whole Related Work review in Introduction

Introduction: a good example “as short as a shot”

1 Introduction

The completeness of a related work review is a problem well known to each scientist. The main question that should be answered is “If the collected set of the scientific publications contain all significant knowledge of the domain of interest?”.

The approaches designed to analyse an existing collection of scientific publications include citation analysis [1,20], the study of the co-authorship [28,29], elaboration of keywords and topics [27], examination of terminology [5]. The evaluation and adjustment of the mentioned methods are performed using different and thoughtfully prepared data sets[1][2][3], but the collection of a representative set of publications related to the particular topic is still the task of current interest.

[1] AAAI Digital Library Conference Proceedings. https://aaai.org/Library/conferences-library.php.

[2] Journals: Free Texts: Download & Streaming: Internet Archive. https://archive.org/details/journals.

[3] Stanford Large Network Dataset Collection. https://snap.stanford.edu/data/.

Introduction and your Main Appeal

Tell the reader the purpose of your study. Usually the reason is

1. to fill a gap in the knowledge
2. or to answer a previously unanswered question.
3. Claim a clear and exact statement of your study aims.
4. You might also explain in a sentence or two how you conducted the study.

Introduction and your Main Appeal (example)

The objective of the presented paper is the implementation of restricted snowball sampling to build representative citation network of scientific publications on a domain of interest. To prevent infinite inflation of the sampled set we keep only the papers similar to the seed ones which are manually selected. The main question to be answered is if the sampling can collect most of the seminal publications concerning the domain of interest.

To estimate the publication similarity our algorithm uses probabilistic topic model. One of the challenges of similarity evaluation is that in most of the cases only titles and abstracts of the publications are available and the common methods like latent Dirichlet allocations [4] lose their precision. So the special modification combining word-word co-occurrence [40, 44], sparse symmetric nonnegative matrix factorization and principal component approximation [14] is suggested. It is demonstrated that the developed method of probabilistic topic modelling provides the natural estimation of the number of topics and allows calculation of the short text semantic similarity.

Introduction and Paper Structure

Give you reader a map to your research results description. It is optional (no one will reject if there is no such a map) but useful.

This paper is organized as follows. In Sect. 2 we review existing advances in building citation network and estimating similarity of the short texts. Section 3 describes the used restricted sampling method along with a short discussion regarding the employed topic model, term dictionary reduction techniques, description of the suggested sparse symmetric nonnegative matrix factorization approach and the application of ideas of principal component approximation. In Sect. 4 the experiment details are described and Sect. 5 contains results of experiments. Section 6 is devoted to short conclusions and directions of the future studies.

Related Work

should answer the question:

"Are you aware of the others' research and their latest results"

- provide a *honest* review of what has been done up-to-date in the world in the topic

Related Work

Initially related work research gives a feeling that “everything is already has been done and published”.

Continue to read. Find the place for your ideas in a world map of the topic.

Structure your understanding by schools, or by approaches, or by objects being investigated.

Related Work and Citations (1)

Make sure your citations are:

1. Relevant
2. Well-balanced (e.g. reporting on positive and negative results of experiments, or negative answer to your research question)

Related Work and Citations (2)

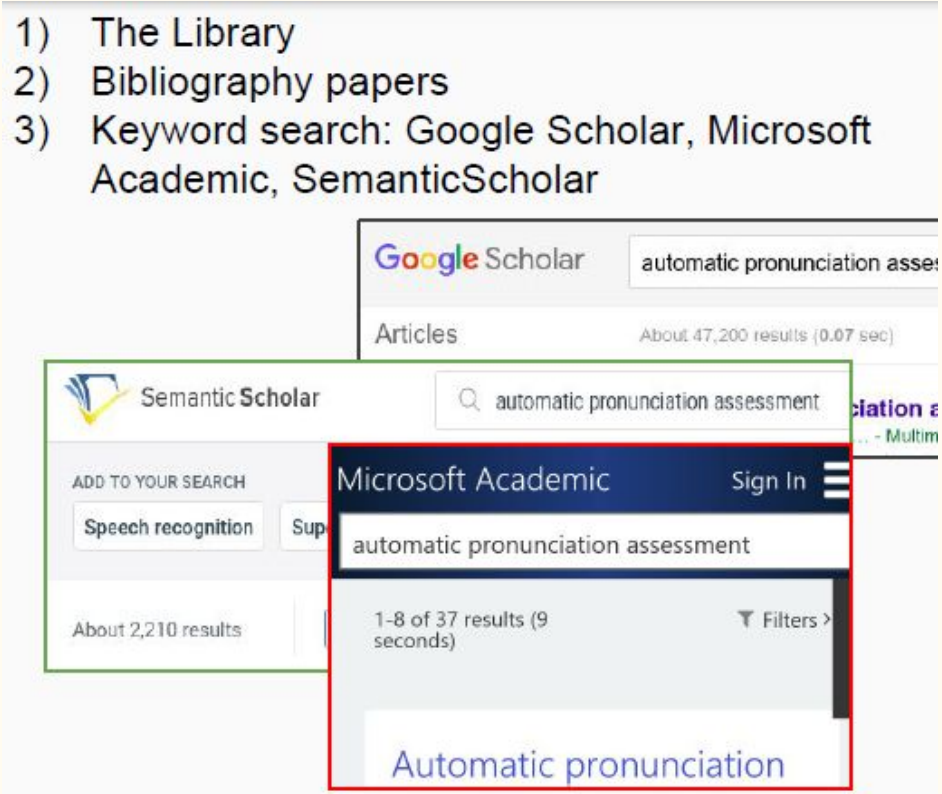
3. Current (~ 10 year old maximum, but depends on the topic)
4. BUT: Be sure to *cite the first discovery or mention* in the literature even if it *older* than 10 years.

One of the particular kinds of forces of interest regarding a physical system is gravitation. Basically, gravitation forces are known to be expressed by the Newton's Law of Universal Gravitation [3] as proportional to the product of interacting masses and inverse to the square distance between these masses. In biological and social systems similar "forces" reflect the degree of "attraction" of a particular object to a

[3] I. Newton. *The Principia, Mathematical Principles of Natural Philosophy, a new Translation.* By I Bernard Cohen and Anne Whitman, preceded by "A Guide to Newton's Principia" by I Bernard Cohen, University of California Press, 1999, ISBN 978-0-520-08816-0, ISBN 978-0-520-08817-7.

Related Work and Citations (3) - where and what

1) The Library
2) Bibliography papers
3) Keyword search: Google Scholar, Microsoft Academic, SemanticScholar



http://scholar.google.com
https://www.semanticscholar.org/
http://academic.research.microsoft.com/

Related Work and Citations (4) - where and what

Intelligent techniques

4) Coauthor networks
5) Exploratory search
6) Ontology based (e.g. Klink-2)
7) Citation networks

Use our results!

http://github.com/gendobr/snowball

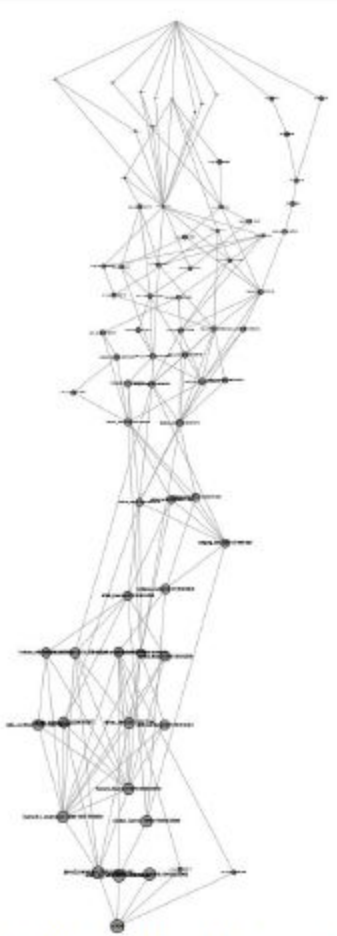
Our Results

1. Software implemented to collect representative citation network.
2. **Plan of Reading**

https://github.com/gendobr/snowball

Main citation path for the collected citation network. Nodes are marked as (first author : year : MS_Academic_Id)

- v703
- nancy_f_chen:2016:2575689684
- wei_li:2016:2401896499
- wenping_hu:2015:2091856355
- wenping_hu:2014:1965370992
- joost_van_doremalen:2009:2132049498
- maxine_eskenazi:2009:2016114400
- helmer_strik:2007:2139565824
- khiet_p_truong:2005:2145767788
- khiet_truong:2006:1496430420
- #ambra_neri:2004:1481151678
- ambra_neri:2002:2119607964
- kristin_precoda:2000:322814586
- leonardo_neumeyer:2000:2070133242
- #yoon_kim:1997:70727784
- horacio_franco:1997:2164810574
- leonardo_neumeyer:1996:1931766939
- jared_bernstein:1990:66698146
- v704



Top 73 nodes
of the collected citation network.

Materials and Methods

Materials and Methods

1. Use *subheadings* to separate different methodologies

TIP: see previously published papers in that journal, and check "Instructions for authors"

Materials and Methods

2. Describe what you did *in the past tense*

TIP: see previously published papers in that journal, and check "Instructions for authors"

Materials and Methods

3. Describe *new methods in enough detail* that another researcher *can reproduce* your experiment

TIP: see previously published papers in that journal, and check "Instructions for authors"

Materials and Methods

4. Describe established methods briefly, and simply cite a reference where readers can find more detail

TIP: see previously published papers in that journal, and check "Instructions for authors"

Materials and Methods

5. *State all statistical tests and parameters*

TIP: see previously published papers in that journal, and check "Instructions for authors"

Results

simply state what you found, but do not interpret the results or discuss their implications.

Results

1. use *subheadings* to separate the results of different experiments

Results

2. Results should be presented in a *logical order*. In general this will be in order of importance, not necessarily the order in which the experiments were performed.
3. Use the *past tense* to describe your results;
4. But: *refer to figures and tables in the present tense*.

Results

5. **Do not duplicate data** among figures, tables, and text. A common mistake is to re-state much of the data from a table in the text of the manuscript. Instead, use the text to summarize what the reader will find in the table, or mention one or two of the most important data points. It is usually much easier to read data in a table than in the text.

6.

Results

5. Include *the results of statistical analyses* in the text, usually by providing **P-values** wherever statistically significant differences are described.

P-value - probability value or asymptotic significance - статистическая значимость результатов.

Results

“a picture is worth a thousand words”.

Draw attractive pictures, graphics.

But: remember of page limits.

Discussion and Conclusions

should answer the question:
“What do your results mean?”

This is the right place for interpretation of the results

Discussion and Conclusions (1)

1. Order: most to least important

2. Compare your results with those from other studies: Are they consistent? If not, discuss possible reasons for the difference.

3. Mention any inconclusive results and explain them as best you can. Write “it needs to be clarified in further results”.

Discussion and Conclusions (2)

4. Briefly describe *the limitations* of your study to show reviewers and readers that you have considered your experiment's weaknesses.

This makes a positive impression of your paper as it makes it clear that you have an in depth understanding of your topic and can think objectively of your research.

Discussion and Conclusions (3)

5. Discuss what your results may mean for researchers in the same field as you

6. State how your results extend the findings of previous studies

7. If your findings are preliminary, suggest future studies that need to be carried out.

8. At the end of your Discussion and Conclusions sections, *state your main conclusions once again*.

Acknowledgements

“Who do you want to thank to?”

Thank all of the people who helped with the research but did not qualify for authorship.

(check the target journal’s Instructions for Authors for authorship guidelines)

Acknowledgments

The authors would like to thank all anonymous reviewers ...

The authors' research is conducted in frame of grant XXX-YYY...

The authors' research is partially supported in frame of grant XXX-YYY...

References

You should reference other work to

References

Establish the origin of idea.

Justify claims.

Provide a context to your work.

Show there is an interest to your research in the topic.

TIP: use reference keepers, BibTeX, EndNote, ... and LaTeX !

Your 1st homework

Propose a topic, follow IMRaD (with bonus from NG :)) and propose a title of your future Scopus paper, titles of sections, keywords. Submit to moodle

Waiting for the End

...This is not the end,

This is not the beginning...

https://www.youtube.com/watch?v=5qF_qbaWt3Q