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# WRITING ARTICLES

## How to prepare a scientific paper?

# WRITING A QUALITY MANUSCRIPT

**Originality** – each scientific paper should contain some innovations and contributions.

**Relevance** and **Motivation**

# CHECKING CRITERIA

**Presentation** and **Exposure**

Possible submission vis-à-vis
scope of the journal or conference and
potential impact of the work

# INTRODUCTION

➢ **Be aware that you should publish results of your research if you want to be visible and stay in science!**

➢ **It is your responsibility to present results of your research to the scientific community.**

➢ **You write <u>for readers</u>, not for yourself, so it must be written clearly, concisely, and understandable and present new ideas!**

➢ **Choose the journal carefully before sending a paper not to be rejected wasting your and the reviewers' time.**
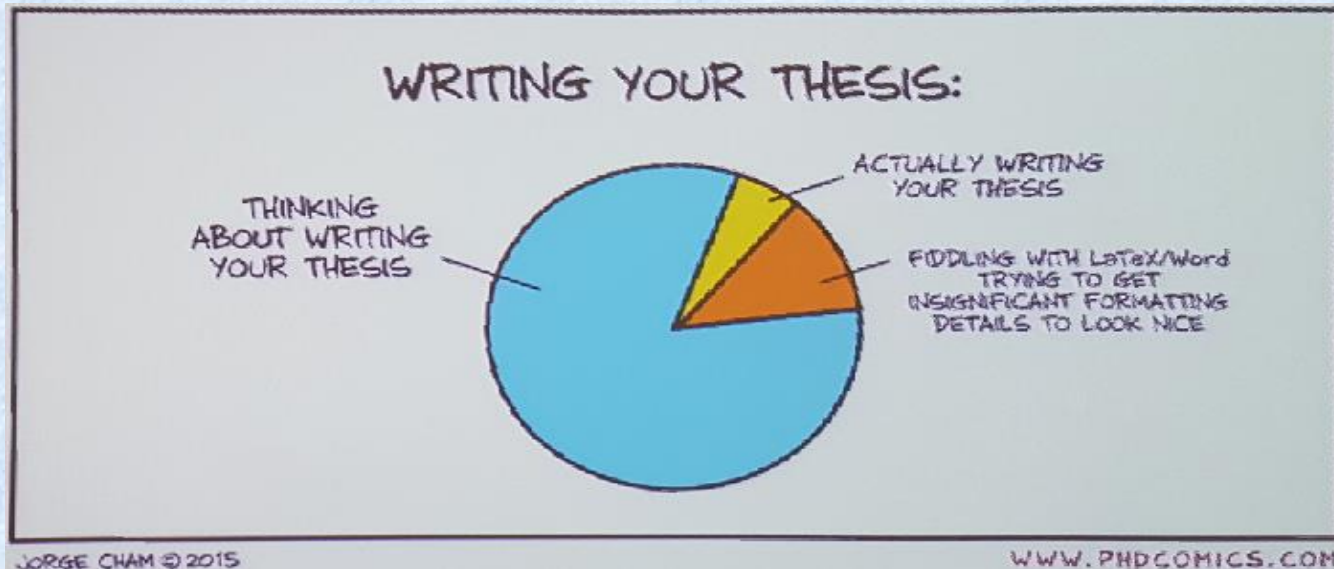
# POPULAR TYPES OF SCIENTIFIC PAPERS

➢ **RESEARCH PAPERS**
**typical papers presenting new concepts, approaches to known problems, algorithms, experiments, devices, etc., solved tasks, or comparisons of new results with state of the art!**

➢ **APPLICATION PAPERS on the developed systems or applications**
**describing the solved problem, difficulties, implementations, choices, comparisons to other systems, analyses of performance, usability, features etc.**

➢ **REVIEW PAPERS**
**presenting organized and structured descriptions of cutting-edge research themes, summarize, analyze, evaluate, comment, or synthesize already published information or results.**

➢ **TUTORIAL PAPERS**
**presenting detailed descriptions of relevant and useful topics, unfamiliar to a significant number of researchers.**

# QUALITY OF PAPERS

**It is very important to take care of the quality of scientific papers you write and publish as well as of their adequate placement to make the presented contributions visible and well-popularized!**

The quality of scientists' work is measured through:

➢ Quantities of articles written and published

➢ The quality of the magazines in which he or she publishes, i.e. their impact indicator, so-called Impact Factor (IF), and their totals for all published articles (SIF)

➢ The number of citations of written articles and the total number of citations

➢ Other indicators, e.g. the Hirsh index (h-index)

➢ Number of patents and implementations

➢ Quantities of books and monographs issued
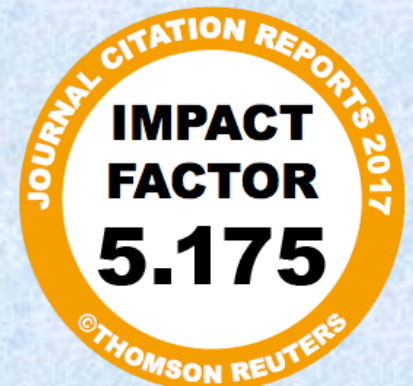
# Standard Journal Requirements and Tips

➤ Submit only papers that have been carefully proofread and polished. Papers that are clearly unacceptable will be usually returned by the editor without being reviewed.

➤ All claims should be clearly articulated and supported either by empirical experiments or theoretical analyses.

➤ When appropriate, authors are encouraged to implement their work and to demonstrate its utility on significant problems; any experiments reported should be reproducible.

➤ Papers describing systems should clearly describe the contributions or the principles underlying the system.

➤ Papers describing theoretical results should also discuss their practical utility.

➤ It should be clear how the work advances the current state of understanding and why the advance matters. Papers should report on what was learned in doing the work, rather than merely on what was done. Be concise in all your descriptions!

# Standard Journal Requirements and Tips

➢ Authors must clearly acknowledge the contributions of their predecessors. If a paper introduces new terminology or techniques, it should also explain why current terminology or techniques are insufficient.

➢ Submissions must be original. The work cannot have been published previously or be pending publication in another journal, nor can it be under review or be sent for review in any other forum. Violation of this policy will result in rejection of the submission and a ban on further submissions! Submissions can, however, contain material published in one or more conference papers, but the new submission should contain additional, unpublished, information, and provide a more complete presentation of the work. Needless to say, it should be different enough from the original conference paper also to avoid copyright infringement issues. The journal format usually affords you the opportunity to include additional significant information such as new experiments, proofs, results, or analysis that did not fit before and to incorporate additional background information or discussion.

# Accompanied Online Appendices

➢ Published articles may be usually accompanied by online appendices containing data, demonstrations, instructions for obtaining source code, or the source code itself if appropriate.

➢ We strongly encourage authors to include such appendices along with their articles.

➢ If an online appendix contains source code, the journal typically requires you to sign a release form prior to publication freeing the journal from liability.

➢ Online appendices might be required and should be included in the review process, dependently on the journal requirements.

# What makes you a good writer?

➢ You should have **an interesting idea** to share **in a logical way**.

➢ Read other good quality papers, pay attention to the content and a way how the authors present their ideas and imitate them.

➢ Before writing, try to talk about your research to somebody.

➢ Communicate your idea **clearly and effectively (most important)!**

➢ Try to present it elegant and stylish.

➢ Don't bore your readers, but try to engage them, tell them something new, innovative, interesting or change their way of thinking presenting new approaches and methods of the solution!

➢ Revise your writings many times (with co-authors or colleagues) because nobody gets its writing perfect on the first try!

➢ Next, cut your writings wisely and ruthlessly, not repeating the same ideas in various parts of the paper. Be consistent in writing.

# What makes your writing good?

➢ Do not start your papers with difficult sentences to understand before reading the article where the terms and conditions are explained.

➢ Consider whether your sentences are readable, easy to understand (without reading the next parts of your paper), enjoyable and exciting to read?

➢ Is your first sentence in your Introduction clear, enjoyable or not?

➢ Complicated, confusing, too long, or unclear sentences discourage readers from reading and reviewers from accepting your papers!

➢ Do not add obvious adjectives to the nouns which make sentences unnecessary long and challenging to understand obscuring essential elements and the main ideas of the sentences.

➢ Do not use unnecessary acronyms or abbreviations of acronyms because they slow down reading and make it difficult to understand!

➢ Do not introduce many new acronyms in a single paper. **One or two are acceptable** and possible to learn. More than that are cumbersome! Avoid introducing new acronyms if not really necessary!!!

# What makes your writing good?

➢ Omit the exact citations from your previous papers but rewrite them saying in short and using adequate bibliography references.

➢ Do not overuse <span style="color:red">passive voice</span> in your papers because it makes the sentences hard to understand.

➢ Do not use long <span style="color:red">inserted descriptive sub-sentences</span> because the reader can lose the main sense of the sentence, e.g.:
„**NOUN** <span style="color:red">that/which</span> ……………………….. **VERB ………**"
but separate the necessary description from the main clause to two subsequent sentences and convey the same ideas differently.

➢ Cut unnecessary words and phrases (learn to part with your words).

➢ Prefer using the active voice (subject + verb + object) rather than passive voice to emphasize subject responsibility, improve readability, and reduce ambiguity. The passive voice may be appropriate in cases when „what was done" is more important that „who did it".

➢ Use strong verbs and avoid turning verbs into nouns.

➢ Don't burry the main verb using unnecessary sub-sentences.

# What makes your writing good?

William Zinsser in *On Writing Well* (1976) wrote:

*„The secret of good writing is **to strip** every sentence to its cleanest components. Every word that serves no function, every long word that could be a sort word, every adverb that carries the same meaning that's already in the verb, every passive construction that leaves the reader unsure of who is doing what – these are the thousands and one adulterants that weaken the strength of the sentence. And they usually occur in proportion to education and rank."*

The example from the Stanford course illustrates how many unnecessary words („garbage") can be omitted because they do not serve new information to the reader or repeat it in a different way:

"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.

# Do not use dead words and phrases

Find in your text and avoid using unnecessary words and phrases like:

„As it is well known, …"

„As it has been shown, …"

„It can be regarded that …"

„It should be emphasized that …"

„… is associated with… „ or „… is related to …"

„… profile of …."

„… is/are/was/were/be used to …."

„… allow for/to …."

„… the basic tenets of …"

„… of … of …"

„… of its kinds (any obvious group)"

„… for the concept of …"

„… e.g. ………… etc."

„… also ……….. as well / too"

„… have been known as …"

„methodologic", „important" or „*worthwhile*" they usually do add nothing!

**Try to write your sentences without the seductive extra words** and see how they convey the same idea with more power and confidence!

# Do not duplicate or use empty words

Do not use words which duplicate their meaning in the sentence like:

- examples and studies
- illustrate and demonstrate
- challenges and difficulties
- approximately and estimate
- successful solutions (because solutions cannot be unsuccessful)

Avoid using unnecessary adverbs in writing (which stress some parts of the sentence when speaking but losing the power when writing):

- very
- really
- quite
- basically
- generally

**Try to write your sentences without the seductive extra words** and see how they convey the same idea with more power and confidence!

# Use Crisp Descriptions

Use crisp versions of the wordy descriptions, e.g.:

- *„most"* instead of *„a majority of"*
- *„many"* instead of *„a number of"*
- *„agree"* instead of *„are of the same opinion"*
- *„rare"* instead of *„less frequently occurring"*
- *„the three"* instead of *„all three of the"*
- *„cause"* instead of *„give rise to"*
- *„because"* instead of *„due to the fact that"*
- *„affect"* instead of *„have an effect on"*
- *„if"* or *„whether"* instead of *„based on the assumption that"*
- *„to"* instead of *„in order to"*
- *„because"* instead of *„due to the fact that"*
- *„as"* instead of *„assuming that"*

The long versions slow down the reader!

# Eliminate and Replace Negatives

Eliminate negatives, e.g.

- *"… not … in-…." (avoid double negatives)*
- *"unimportant"* instead of *"not important"*
- *"rarely right" or "sometimes/often wrong" instead of "not always right"*
- *"lacks"* instead of *"does not have"*
- *"save"* instead of *"not harmful"*
- *"forgot"* instead of *"did not remember"*
- *"ignored"* instead of *"did not pay attention to"*
- *"failed"* instead of *"did not succeed"*

Whenever „not" is used in a sentence try to say it in another words, shorter, easier, and more clearly because our brains must work harder to interpret „not" in a clause!

# Reduce There is/are and Prepositions

Reduce superfluous „there is" or „there are", e.g.:

*„We can … in many ways."* instead of
*„There are many ways in which we can …"*

*„… confirms X … "* instead of *„… confirms that there is X … "*

Always check whether „there is" or „there are" is necessary?

Omit needles prepositions like „that", "on", „who", „which".

# Use Strong Verbs

Try to replace weak verbs with stronger verbs instead of lackluster ones:

Be, am, is, are, was, were, been, obtain, provide, take, have, has, show, offer, supply … are week, not dynamic.

**Use more specific and dynamic (stronger) verbs!**

**Do not kill verbs (action) by turning them into nouns.**

use „*estimate*" instead of „*obtain estimate of*"

use „*has expanded*" instead of „*has seen expansion of*"

use „*emphasizes*" instead of „*provides emphasis of*"

use „*assess*" instead of „*take an assessment of*"

use „*review*" instead of „*provide a review of*"

use „*confirm*" instead of „*offer confirmation of*"

use „*decide*" instead of „*make a decision*"

use „*describe*" instead of „*provide a description of*"

use „*peaks*" instead of „*show a peak*"

use „*analyze*" instead of „*give a analysis*"

use „*solve*" instead of „*offer a solution*"

# Put a Verb close to the Subject

The **Verb** should be placed at the beginning of the sequence not far away from the **Subject**. On the other hand, we can lose the readers attention because they wait for the action (described by the Verb) that will be done on the Subject.

# Parallelism in Sentences

When writing long sentences concatenating many sentence coordinates, write all of them in the same style, tense etc.

The parallel sentence structure helps with the paragraph flow.

# Paragraphs

- ✓ Divide long paragraphs into a few paragraphs presenting separate ideas: 1 paragraph (short) = 1 idea.
- ✓ Give away the punch line early.
- ✓ Do not overuse transition words at the beginning of the sentences (However, Furthermore, Moreover, Thus, Hence, Nevertheless, But, Interestingly, If necessary, On the other hand,…)
- ✓ Readers usually remember the first and last sentences best!
- ✓ Use the logical flow of the presented ideas:
  - ✓ From general to specific
  - ✓ In sequential or chronological order
  - ✓ Logical arguments in right succession (if … then, therefore, in a result, because…)
- ✓ Avoid repeating the same words, but if necessary repeat key words, e.g. names of comparison groups, variables, or instruments instead of using synonyms which can weaken the sense or confuse readers!

# Acronyms and Initialisms

➢ Try to use only well-known, standard acronyms, e.g. DNA, SVM.

➢ Possibly do not make them up.

➢ If you want to establish a new acronym, do not create more than one or two new acronyms in the paper. It is difficult for the reader to remember many new acronyms. They treat them as a new foreign word that is necessary to understand the sentence.

# Steps in the Writing Process

1. Prewriting (50-70% of the time):

   ▪ Collect, synthesize, and organize the information you want to share

   ▪ Brainstorm take-home messages

   ▪ Work out ideas away from the computer

   ▪ Develop a roadmap (outline)

2. Writing the first draft (10-20% of the time):

   ▪ Put your facts and ideas together in organized prose quickly

3. Revision (20-40% of the time):

   ▪ Read your work out loud or using a voice synthesizer.

   ▪ Get rid of clutter.

   ▪ Do a verb check.

   ▪ Get feedback from other co-authors.

Avoid writing without brainstorming your ideas.

Do not revise during writing – it is inefficient and you can lose idea!

# Prewriting Tips

- **Gather information and data, create algorithms, arrange key facts and citations** from the literature into a crude road map (outline) and get organized **before** writing your first draft. Do not do these two things simultaneously because it is extremely inefficient!

- **Brainstorm** away from the computer (while exercising, driving alone, in the bath, waiting in line, before falling asleep etc.)

- **Imagine the task and facts** which can help you to solve the problem!

- Like ideas and the same things should be **grouped and close together**.

- Like paragraphs should be **grouped and simplified**.

- When discussing a controversy, follow:

  1. All arguments

  2. All counter-arguments

  3. All rebuttals

# Writing Tips

- Divide your writing task into **small and realistic goals** and fulfill these goals in the following days.

- **Start with Tables and Figures, next describe Results** (which came from Tables and Figures), and subsequently go to the Method (which says how result were achieved) description, continue with Introduction, next do the Discussion, and finish with Abstract.

- Write as clearly and consistently as possible but do not spend much time on revision when writing. Your first draft does not have to be perfect at first. It will be easier for you to revise and improve it after describing more ideas.

- The goal of the first draft is to get the ideas down in complete sentences in order. Do it quickly focusing on the ideas and their logical presentation in the right order. Present the causes and effects.

- Writing the first draft is the hardest step for most people.

- Do not worry about sentence-level details too much. You can describe the necessary details later according to the available space.

- Focus on the logical organization of your paper.

# Revision Tips

- ✓ Read your writing out loud or use a voice synthesizer because the brain processes the spoken words differently than the written words!
- ✓ Find lackluster verbs and change them to stronger and dynamic verbs.
- ✓ Find dead weight words and phrases, e.g. It should be emphasized that…
- ✓ Find empty words and phrases, e.g. basic tenets of, important.
- ✓ Find long words and phrases that could be shorter, better readable, and easier to understand.
- ✓ Watch for:
  - • unnecessary jargon and acronyms
  - • repetitive words and phrases
  - • adverbs (very, really, quite, basically, etc.)
- ✓ Do the organization review moving paragraphs talking about the same things together avoiding repetitions!
- ✓ It is profitable to ask someone for reading your manuscript and giving you outside feedback, e.g. about hard-to-read sentences and paragraphs!
- ✓ **Revise your paper as other papers before submitting it!**

# STRUCTURE OF THE ARTICLE

1. Title
2. Authors
3. Abstract
4. Keywords
5. Main text
    1. Introduction
    2. Method description
    3. Results and Comparisons
    4. Discussion and Conclusion
6. Acknowledgements
7. References
8. Supplementary materials (optional)

# TITLE

## Neurons Can Sort Data Efficiently

- ✓ Good titles should address the solved problem more than the way (method) how it was done because people are searching for solutions to problems more often than for the implementations of given methods!
- ✓ A good title should contain the fewest possible words that adequately describe the contents of a paper
- ✓ Attract the attention of potential readers.
- ✓ Be interesting, specific, concise and complete.
- ✓ Focus on a part of the content only.
- ✓ Convey the main research findings.

**Do not use:**

- ✕ Unnecessary jargon
- ✕ Uncommon abbreviations
- ✕ Ambiguous terms
- ✕ Unnecessary details

**Springer**

**ICAISC 2017**

**16th International Conference on Artificial Intelligence and Soft Computing**

*June 11-15, 2017, Zakopane, Poland*

**ICAISC Best Paper Award 2017**

Awarded to

**Adrian Horzyk**

„Neurons Can Sort Data Efficiently"

# TITLE CAPITALIZATION

## Neurons Can Sort Data Efficiently

✓ Capitalize all important words in a title: nouns, pronouns, verbs, adverbs, subordinating conjunctions (as, because,  that), and prepositions which become a part of phrasal verb (Back Up a Computer)

× Articles (a, an, the),  coordinating conjunctions (and, but, or, for, nor, etc.) and prepositions (fewer than five letters: on, at, to, from, by, etc.) are lowercase in titles

Further information is available on the site:
http://grammar.yourdictionary.com/capitalization/rules-for-capitalization-in-titles.html

# What Titles Keen us to Read?

Titles must be:

➢ Interesting

➢ Touching nowadays problems

➢ Linked to the needs or fears of the readers

Springer 3 most read papers had the following titles:

✓ **Freud, Frankenstein and our fear of robots: projection in our cultural perception of technology**

✓ **Digitization as an ethical challenge**

✓ **Where and when AI and CI meet: exploring the intersection of artificial and collective intelligence towards the goal of innovating how we govern**

# AUTHORSHIP

- ✓ **The first author(s)** should be the primary creator of the idea, conception, method, algorithm, or newly presented approach.

- ✓ **The second and following authors** should be ordered after the degree of their involvement in the described research, implementation, data acquisition, comparisons, analyses, data, or results interpretation, paper preparation, critical revision etc.

- ✓ **The last author** is usually the senior scientist who take care about the quality of the study and research of the young author(s), controls the research or take the essential care about the content of the paper if applicable.
  **The last author** is sometimes the supervisor who is also the sponsor of the described research.

Authors should be real! If someone wants to be a co-author, demand that he or she takes part in the research and preparation of the paper. Do not add ghost or gift authors! Do not forget to add real co-authors!

The more authors of the paper, the lower score you get, but the higher h-index you will achieve in the future, so cooperation is beneficial over a longer period of time.

# AUTHORSHIP

- ➤ **Each author listed on the paper's title page should take public responsibility for its content.**

- ➤ **Others should be mentioned at the Acknowledgment Section.**

- ➤ **Each author should have a contribution in the paper.**

- ➤ **Authors' order implies relative contributions with exception of the senior author position.**

- ➤ **The senior author (head of the lab or research team) often appear as the last-listed author.**

# ACKNOWLEDGEMENTS

➤ **Provide your funding sources.**

➤ **Mention your contributors who did not get authorship, e.g. offered materials, advice, or consultations that was not significant enough to merit authorship.**

# EFFICIENT TITLES AND HEADINGS

## Neurons Can Sort Data Efficiently

- ✓ **Make sure the headline works out of context.**

- ✓ **Tell readers something useful.**

- ✓ **Don't succumb to cute or faddish vocabulary.**

- ✓ **Omit nonessential words.**

- ✓ **Front-load headings with strong keywords.**

Make a good first impression with short, keyword-leading headings that sound authentic, contain useful information, and make sense out of context. Then, you should notice a lift in user engagement.

Further information is available on the site:
https://www.nngroup.com/articles/headings-pickup-lines/

# AUTHORS

Names of all authors are usually supplemented by:

- ✓ Their affiliations
- ✓ Correspondence addresses
- ✓ E-mails

Sometimes by:

- ✓ Membership information
- ✓ Web pages

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# ABSTRACT

The quality of an abstract usually strongly impacts the reviewers' and editor's final decisions! Consult the Guide for Authors for word limit!

**A good abstract:**
- ✓ Supplies readers with overview of the main story.
- ✓ Gives highlights from each section of the paper.
- ✓ Is brief, specific, precise, and honest.
- ✓ Has typically limited lenght to 100-300 words.
- ✓ Should stand on its own (stands alone entity).
- ✓ Specifies the most important outcomes, results, and contributions
- ✓ Should be like a good *elevator pitch* in business.
- ✓ Is used by indexing robots.
- ✓ Should be written at the end of the paper!

**Do not use:**
- × technical jargon
- × citations
- × References
- × formulas

# ABSTRACT

**A good abstract should contain:**
- ✓ Motivation, background, and context
- ✓ Question, aim, or hypothesis
- ✓ Methods and experiments
- ✓ Results (key results found, minimal raw data)
- ✓ Conclusions (the answer to the question asked/take-home message)
- ✓ Implication, speculation, or recommendation

# ABSTRACT EXAMPLE 1

**Motivation** The temporal relation between vascular and neuronal responses of the brain to external stimuli is not precisely known. For a better understanding of the neuro–vascular coupling changes in cerebral blood volume and oxygenation have to be measured simultaneously with neuronal currents. With this motivation modulation dc-magnetoencephalography was combined with **Methods** multi-channel time-resolved near-infrared spectroscopy to simultaneously monitor neuronal and vascular parameters on a scale of seconds. Here, the technique is described, how magnetic and optical signals can be measured simultaneously. In a simple motor activation paradigm (alternating 30 s of finger movement with 30 s of rest for 40 min) both signals were recorded **Results** non-invasively over the motor cortex of eight subjects. The off-line averaged signals from both modalities showed distinct stimulation related changes. By plotting changes in oxy- or deoxyhaemoglobin as a function of magnetic field a characteristic trajectory was created, which was similar to a hysteresis loop. **Conclusions** A parametric analysis allowed quantitative results regarding the timing of coupling: the vascular signal increased significantly slower than the neuronal signal.

# ABSTRACT EXAMPLE 2

*Abstract*— This paper describes the integration of semantic and episodic memory models and the benefits of such integration. Semantic memory is used as a foundation of knowledge and concept learning, and is needed for the operation of any cognitive system. Episodic memory retains personal experiences stored based on their significance – it is supported by the semantic memory, and in return it supports semantic memory operation. Integrated declarative memories are critical for cognitive system development, yet very little research has been done to develop their computational models. We considered structural self-organization of both semantic and episodic memories with symbolic representation of input events. Sequences of events are stored in episodic memory and are used to build associations in semantic memory. We demonstrated that integration of semantic and episodic memories improves the native operation of both types of memories. Experimental results are presented to illustrate how the two memories complement each other by improving recognition, prediction and context based generalization of individual memories.

# KEYWORDS

- Keywords are important for indexing, referencing and search engines.

- They enable your manuscript to be more easily identified, found and cited!

- Always check the journal requirements, especially: Guide for Authors.

✓ Keywords should be specific in a scope of a paper.

× Avoid uncommon abbreviations

× Do not use too general terms

**Keywords:** brain inspired computations; neuron models; sorting algorithms; ASSORT; associative representation; computational complexity.

*Index Terms*—**Semantic memory, episodic memory, cognitive system, motivated and reinforcement learning, event significance.**

# INTRODUCTION

Introduction should provide the necessary background information to put your work and contribution into a context. Introduction should be short and give only the basic context.

An introduction should make clear:

- Why the current work was performed:
  - Aims
  - Significance
- What has been done before:
  - In your research (place here the adequate references to your papers)
  - In the other studies (place here the adequate references to the papers)
- What was done (describe your contribution in brief terms and stress the novelty of your solution)
- What has achieved (in brief terms)

# INTRODUCTION

- ✓ Consult the Guide for Authors for word limit.
- ✓ Set the scene
- ✓ Outline the scientific task and your hypotheses
- ✓ Ensure that the literature cited is balanced, relevant and up to date (possibly from last few years)
- ✓ Define any non-standard abbreviations and necessary jargon.
- ✓ Be simple, clear and decent.

**Do not:**

- × Use too many abbreviations or colliding with other commonly used.
- × Write an extensive review of the field
- × Cite disproportionately your own work, work of colleagues or work that supports your findings while ignoring contradictory studies or work by competitors.
- × Describe methods, results or conclusions other than to outline what was done and achieved in the final paragraph
- × Overuse terms like „novel", „highly original", „for the first time", „breakthrough", „innovative", „revolutionary" etc.

# INTRODUCTION

✓ It should consist of 2 to 5 paragraphs.

✓ It should not be an exhaustive review of your general topic,
but it should focus on the specific question, hypothesis, and aim of your study.

✓ Name and define the problem you will solve in your paper.

✓ Share in short with major information about papers describing other approaches and solutions of the defined problem.

✓ Show that you know research of others who deal with the presented topic of your paper.

✓ Introduction of the schema defining three subsequent paragraphs:

1. Start with **known information**, giving background (context) to the readers.

2. Show the **knowledge gap** that you would like to fill.

3. Present **your hypothesis, burning question(s), aim, and propose statement**, e.g. „We aim to …" „The goal of … is …" Shortly introduce **your new (novel) approach, the plan of attack, the proposed solution of how you suggest to fill in these gaps (answer questions) and explain why your approach is new and different**. Highlight what is new in your approach and what will be your contribution.

# INTRODUCTION

- ✓ Write it for a general audience.
- ✓ Keep paragraphs short, clear, concise, and non-technical.
- ✓ Take the reader step by step **from what is known to what is unknown**.
- ✓ End with your specific **question** or **hypothesis**.
- ✓ Emphasize how your study fills in the gaps of knowledge (the unknown), using phrases like:
    - ✓ „Our hypothesis was …"
    - ✓ „We tested the hypothesis that …"
    - ✓ „Our aim was …"
    - ✓ „We asked whether …"
- ✓ Set up the research questions but do not answer them or show implications.
- ✓ Summarize the previous research from the literature at a high level (use one or two sentences to shortly characterize each literature position), i.e. leave detailed description, speculations, and criticisms of particular studies for the discussion section.

# INTRODUCTION

- ✓ Introducing previous studies:
  - ✓ „Previous studies have shown ……."
  - ✓ „[Somebody] found / discovered / showed / described / suggested ……" etc.
- ✓ Introducing what is unknown:
  - ✓ „… is inconsistent."
  - ✓ „… is limited."
  - ✓ „… is slow."
  - ✓ „… is unclear."
  - ✓ „… failed (to do [something])."
  - ✓ „… limited number of …"
  - ✓ „… has not been (systematically) examined." etc.
- ✓ Introducing questions or hypothesis:
  - ✓ „The aim of this study was to …"
  - ✓ „Our objective was to …"
  - ✓ „Our primary hypothesis was that …"
  - ✓ „This study will answer the question …"
  - ✓ „We conducted a prospective investigation in …"
  - ✓ „We model(ed) / examine(d)…"
  - ✓ „We performed a study designed to test …"
  - ✓ „We computed …" etc.

# INTRODUCTION

- ✓ It encourages or discourages further reading!
- ✓ Explains why you wrote this article?
- ✓ Explains all the concepts from the title.
- ✓ Show the background based on your works (<20%) and the works of other authors (>80%).
- ✓ Indicate clearly the goal of your research of this paper.
- ✓ Show the originality of your work.
- ✓ It should be not too long (at most 2 pages).
- ✓ It should be easily understood even by non-specialists!
- ✓ Define the problem (show its importance), point out disadvantages of the existing methods and introduce your solution, pay attention to your essential observations which allowed to solve the problem better than other authors, and finally announce the solution and results.

# METHOD  SECTION

➢ Give a clear overview of what was done.

➢ Give enough information to replicate the study (like a recipe or algorithm).

➢ Be complete, but make the description easy for your readers.

    ➢ Break the description into smaller sections with subheadings.

    ➢ Cite a reference for commonly used methods rather than going into all details of the well-known methods.

    ➢ Display method information in a flow diagram or table where possible.

➢ You may use the passive voice more liberally in this section

➢ You may also use jargon when necessary…

➢ The method section should explain:
**Who, What, When, Where, How, and Why.**

➢ Report methods in **past tense** because they were already done!

➢ But use **present tense** to describe how data are presented in the paper.

➢ Use **passive voice** to emphasize what was done rather than who did it!
In other cases use **active voice**, but do not start each sentence with „We".

# METHOD DESCRIPTION

- ✓ must be clear, correct, logical, and well embedded in the context of other methods, algorithms, and approaches;

- ✓ should be clearly illustrated using diagrams, figures, graphs, charts, flow charts, algorithms, tables etc. which clarify the description and allow to imagine better how it works;

- ✓ should be mathematically proved if possible or confirmed by experiments and simulations;

- ✓ should be supplemented by practical experiments and comparisons.

Be careful about mixing the method description together with experimental results! Illustration of the method should be very short and not distracting!

# MATHEMATICS

✓ Explain all symbols before using them

✓ Use standard notation

✓ Check equations carefully

✓ Number equations for further references

× Avoid „dry" formulas without explanation

× Avoid misuse of symbols

$$X_{R_{v_i}^a} = t_{v_i^a} \cdot x_{v_i}^a + \sum_j^{R_{v_j}^a \rightsquigarrow R_{v_i}^a} y_{R_{v_j}^a} \cdot w_{R_{v_j}^a, R_{v_i}^a} + \sum_k^{O_k \rightsquigarrow R_{v_i}^a} y_{O_k} \cdot w_{O_k, R_{v_i}^a} \qquad (8)$$

# PRESENTATION FLOW

Use the top-down approach:

1. Main idea and planned goals
2. Fundamentals and backgrounds
3. Algorithms and Methods
4. Experiments and illustrative example(s) to make presentation more clear, attractive and motivate to use
5. Comparisons and Benchmarks
6. Discussion
7. Conclusions, Remarks and Summaries
× Avoid mixing levels of abstraction, e.g. concept with numerical values used in experiments

# PRESENTATION OF RESULTS

Describe clearly the main finding of your research, illustrate them and compare with the results of other researches referencing to their publications:

✓ Use figures and tables to summarize data.

✓ Use benchmark examples and comparisons.

✓ Show the results of statistical analysis.

✓ Compare „like with like".

**Do not:**

× Duplicate data among tables, figures and text.

× Use graphics to illustrate data that can easily be summarized with text.

# FIGURES and TABLES

➢ Figures and tables are the essence (foundation) of the paper which are usually inspected at first after looking at the title and reading the abstract when reviewing an article!

➢ Figures and tables usually contain and should present the most important results.

➢ Figures and tables should stand alone and be self-describing, telling a complete „story". The reader should not need to refer back to the main text to understand the presented results.

➢ Use the fewest figures and tables needed to tell the story.

➢ Do not present the same data in both a figure and a table.

➢ Use „(Table 1)" instead of „as shown in Table 1" or „Table 1 presents" because it is obvious.

# FIGURES

➤ Tell the whole story quickly.

➤ Visual impact.

➤ Show patterns and trends.

➤ Highlight a particular results.

➤ Make it easy to distinguish groups.

➤ Contain primary evidence, graphs, or drawing and diagrams.

➤ Illustrate an experimental set-up, work-flow, flow of elements, cause and effect relationships or cycles.

➤ Give a hypothetical model.

➤ The figure title should contain a brief title, essential experimental details, definitions of symbols or line/bar patterns, explanation of panels (A, B, etc.) and statistical information to be self-describing.

# TABLES

➤ Each table should contain one topic, one kind of the results, e.g. one comparison of results, trends, etc.

➤ Give precise values.

➤ Display many values or variables.

➤ Table title should identify the specific topic or point of the table.

➤ Use the same key terms in the table title, the column headings, and the text of the paper.

➤ Be consistent and keep the title brief.

➤ Use footnotes to explain statistically significant differences, experimental details or abbreviations.

➤ Use superscript symbols (according to the given journal guidelines)
to identify footnotes, e.g. *, **,#, †, ‡.

➤ Follow the journal guidelines to correctly format the table title, columns, headings, and data.

# TABLES

➤ Avoid using grid lines. Professional tables usually contain there horizontal lines:

  ➤ one above the column headings,

  ➤ one below the column headings, and

  ➤ one below the data (i.e. separating the data from the optional footnotes).

➤ Some journals like to grey out every other row to distinguish data in one row from the next one. The shade guides the readers eyes.

➤ Avoid inconsistency in using capital and small letters.

➤ The data in the columns should be lined up (not centered).

➤ Use a reasonable number of significant decimal places. Usually one is enough.

➤ Give units for the variable or data in the table.

➤ Create crisp tables without too many columns. Do not include columns that can be calculated from other columns.

# EXAMPLE OF A FIGURE WITH CHARTS
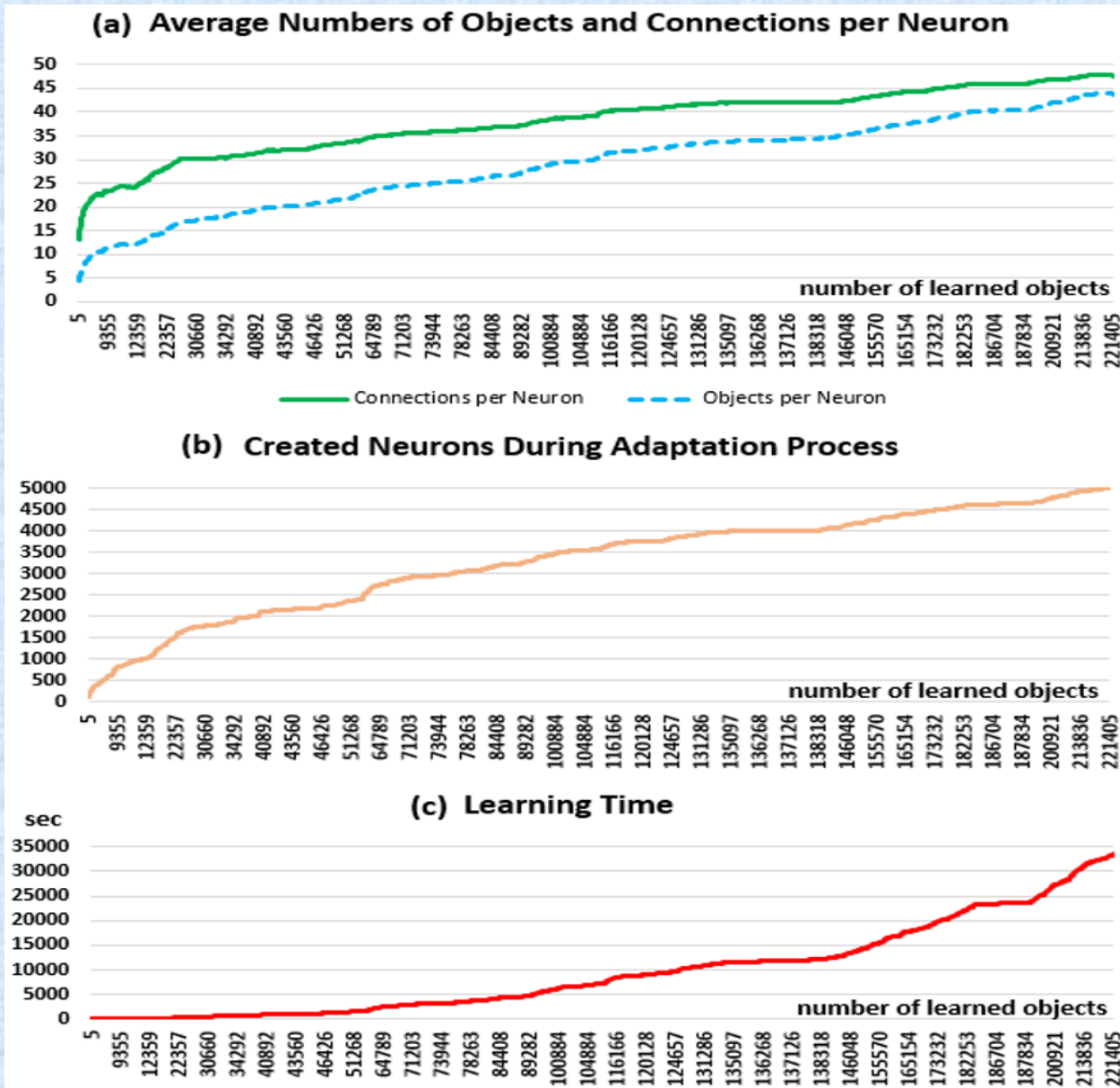


Fig. 7. Performance results for a large data set.

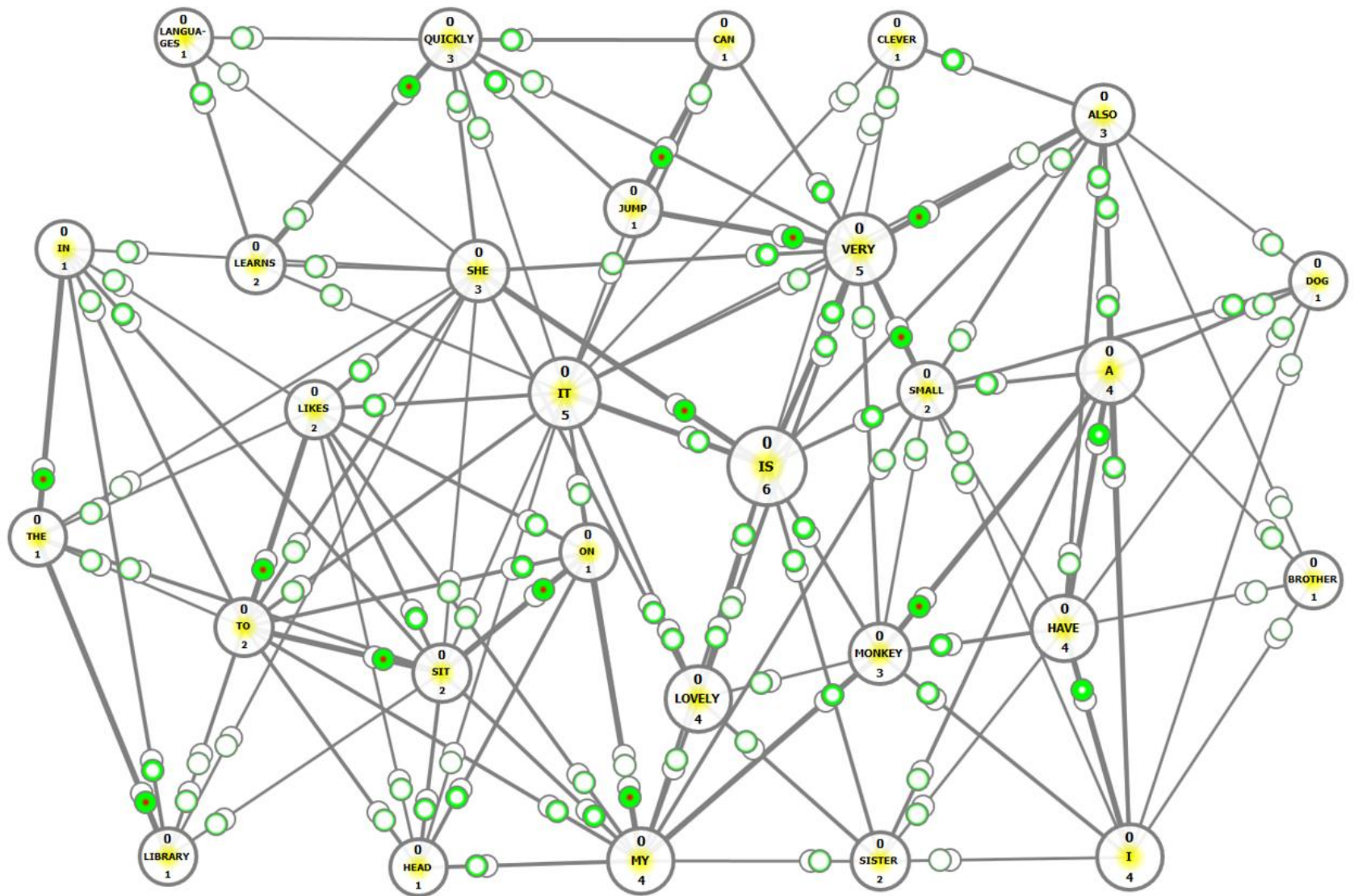Fig. 8. View of the training sample sequences described in Example 1.

# EXAMPLE OF A TABLE

| Compared Datasets | No of Elements | Duplicates No | Perc | B+Tree Drop | AVB+tree Drop |
|---|---|---|---|---|---|
| Istanbul stock exchange | 5360 | 622 | 11.6% | 0.01 | 0.05 |
| Banknote | 6860 | 1838 | 28.8% | 0.15 | 0.41 |
| Carbon nanotubes | 85768 | 40466 | 47.2% | 2.12 | 5.12 |
| Wine | 2492 | 1213 | 48.7% | 0.05 | 0.08 |
| Iris | 750 | 624 | 83.2% | 0.02 | 0.01 |
| Breast cancer | 7689 | 6952 | 90.4% | 0.15 | 0.11 |
| Adults | 488415 | 466269 | 95.5% | 5.93 | 3.48 |
| Wine Quality | 58788 | 56462 | 96.0% | 1.50 | 0.88 |
| Cars | 12096 | 12071 | 99.8% | 0.38 | 0.08 |

TABLE IV. SEMANTIC MEMORY RESPONSE IN REAL TIME INTERACTION

| Question | ANAKG only | ANAKG with LTM feedback |
|---|---|---|
| What is this monkey like? | Is monkey | Is monkey |
| Monkey is what? | Monkey is | Monkey is very lovely small |
| Sister is what? | Sister is | Sister is lovely |
| Who is very clever? | Is very lovely clever | Is very lovely clever small |
| Who is very clever? | Is very clever | It is also very clever |
| What my brother like? | My brother | My brother |
| What she likes to do in the reading room? | She likes to in the reading library room in the | She likes to sit in the library reading room the in library |

**Quick tips on writing titles for tables and figures in scientific papers:**

https://www.editage.com/insights/quick-tips-on-writing-titles-for-tables-and-figures-in-scientific-papers

# DIAGRAMS AND DRAWINGS

➢ Illustrate an experimental set-up or work-flow.

➢ Indicate flow of participants or elements.

# MOVIES

➢ Add a movie as a supplementary materials.

# RESULT SECTION

➤ Summarize what the data (in tables and figures) show.

➤ Result section is about what you found not what you did! What you did should be presented in the Method section.

➤ Point out simple relationships.

➤ Describe big-picture trends.

➤ Cite figures and tables that present supporting data.

➤ Avoid simply repeating the numbers that are already available in tables and figures.

➤ Break results into subsections with headings (if needed).

➤ Complement the information that is already presented in tables and figures.

➤ Repeat and highlight only the most important numbers.

➤ Talk about negative and control results because they are as important as positive results.

➤ But do not mix up the results with discussion – what should be presented in the Discussion section, where you specify what your results mean?

➤ Use **past tense** to emphasize the completed actions and got results.

➤ Use **present tense** for assertions that continue to be true, such as what the tables show, what you believe, and what the data suggest etc., e.g. Figure 1 shows…, The findings confirm…, The data suggest…

➤ Use active voice in the result section.

# COMPARISONS

**Comparisons to other methods, approaches, results are substantial, required to evaluate your results and promote your solution:**

- ✓ Never forget about them.
- ✓ Try to do as many comparisons as possible.
- ✓ Compare your method and results to the best methods and results in the world, on the other hand, you will be criticized by reviewers, and your paper will be most probably rejected.
- ✓ Cite other research papers in your comparisons in order to point out where your comparisons come from.
- ✓ Use known datasets and popular methods in your comparisons to allow others to evaluate your results.
- ✓ Avoid using unknown or only your datasets because such comparisons are not objective and trustworthy for others.

# QUANTITATIVE EVALUATION CRITERIA

**Each paper should supply the readers with quantitative evaluation criteria and evaluation of the achieved results:**

- ✓ To help reviewers and readers to compare and evaluate achieved results and the proposed algorithms with the state of the art algorithms and results.
- ✓ Good comparisons are necessary to persuade readers to use the proposed algorithms.
- ✓ Describe the pros and cons of your approach.
- ✓ Give a numerical, percentage, and quantitative evaluation of your results.
- ✓ Explain, even roughly, where conceptual differences are, to allow to place the approach in terms of novelty.
- ✓ Show the implementation of your approach on real data and real problems if possible to prove its usefulness.

# REPRODUCIBLE RESULTS

**Descriptions of the method, algorithm, approach, data should be specific enough to be able to:**

✓ reproduce achieved results by other researchers,

✓ be checked and judged whether the findings, results, and conclusions are valid,

✓ be implemented by other researchers in their studies,

✓ present achieved results without interpretation
(the interpretation should be left for the final chapter of the paper, usually called „Conclusion(s)" or „Summary".

Sometimes libraries or code can be delivered and published, using e.g. IEEE Code Ocean or other exchange platforms.
Some reviewers expect and prefer fragments of code
in the paper instead of the word descriptions of the algorithms.

# DISCUSSION

**Describe:**
- ✓ How the results relate to the study's aims and hypotheses?
- ✓ How the findings relate to those of other studies?
- ✓ Comparisons of your findings to other results of up-to-date (latest) resources (refer to them the during discussion).
- ✓ All possible interpretations of your findings.
- ✓ Limitations of your current study, e.g. describe what limits the accuracy, what influences speed, computational complexity etc.
- ✓ Show the strength and weaknesses, accuracy and robustness of your approach, method or algorithm.
- ✓ Further directions of your next planned studies or research.

**Avoid:**
- × Making „grand statements" (take-home-message) that are not supported by the data and presented results, e.g. „*This novel learning method will enormously reduce the learning time.*"
- × Introducing new results or terms.
- × Announcing any future results.

# DISCUSSION

Go along the following schema:

1. Answer the question asked in the introduction and present your key findings: „We found/investigated that…", explain the computed data (results), and state if these findings are novel.
2. Put your findings into a context. Give possible mechanisms or pathways. Compare results with other results. Discuss how your findings support or challenge the paradigm.
3. Support your conclusions. Anticipate readers' questions or criticisms. Explain why your results are robust.
4. Defend your conclusions.
5. Point out unanswered questions and future directions.
6. Give the „big-picture" and implications of basic science findings.
7. Tell readers why they should care.
8. Explain what your results mean and why should anyone care them?
9. Give a final take-home message.

# DISCUSSION TIPS

- ✓ Use the active voice.
- ✓ Tell it like a story.
- ✓ Start and end with the main findings, e.g. „We found that…"
- ✓ Do not travel too far from your data.
- ✓ Do not speculate over your data and results!
- ✓ Focus on what your data really prove, not what you had hoped your data would prove!
- ✓ Focus on the limitations that matter, not generic limitations.
- ✓ Limitations should be clearly presented, not hidden!
- ✓ Make sure that your take-home message is clear and consistent.

# CONCLUSIONS and SUMMARY

- ✓ Should be verbal, describing your findings.
- ✓ Put your study into a context of the other researches.
- ✓ Describe how it represents an advance in the field.
- ✓ Stress the impact of your study and the achieved results.
- ✓ Suggest future experiments and studies.
- × Avoid repetition with other sections.
- × Avoid being overly speculative.
- × Do not over-emphasize the impact of your study.

## VII. CONCLUSION

This paper proposed an integrated semantic and episodic memory model. Integration improves recognition in episodic memory by providing associated context that helps to trigger episodic memory traces. Episodic memory influences activation of the semantic memory neurons, removing ambiguities of sequential recall within a specific context. This is important in situations where exact recall of events is needed, rather than indiscriminate recall of all associated events.

# REFERENCES

**Check:**

➢ the Guide for Authors for the correct format
   (each Journal has its own preferences and used standard)

➢ Spelling of author names

➢ Punctuation (full-stop, comas and colon marks)

➢ Number of authors to include before using „et. al."

➢ Reference style

[40] V. A. Nguyen, J. A. Starzyk, W-B. Goh, D. Jachyra, "Neural Network Structure for Spatio-Temporal Long-Term Memory," *IEEE Trans on Neural Networks and Learning Systems*, vol. 23, no. 6, June, 2012, pp. 971-983.

[41] M. W. Kadous, "Temporal classification: Extending the classification paradigm to multivariate analysis," Ph.D. thesis, School Comput. Sci. Eng., Univ. New South Wales, Kensington, Australia, 2002.

**Avoid:**

❖ Outdated papers

❖ Excessive self-citation

❖ Personal communication

❖ Unpublished observations

❖ Citing articles published only in the local language (e.g. Polish)

❖ Submitted manuscripts not yet accepted

# REFERENCES AND IMPACT

## Take care of the following rules:

➢ Cite authors of the country of origin of the journal (>40%).

➢ Authors of other countries are usually unknown to reviewers and their papers might be controversial.

➢ Do not cite papers weakly or not related to the topics of your paper. It will be perceived as granted or ghost links!

➢ Cite known authors and their up-to-date works (> 50%).

➢ Limit the references older than 5 years (< 30%).

➢ Cite various authors and care about diversity of citing because it talks about your knowledge and experience.

➢ Avoid citing more than 20% of all your reference papers of the same author.

➢ Possibly cite a few papers from the same journal but do not overdo it (< 20%).

➢ Avoid citing too many of your previous papers (<20%).

# LANGUAGE

Poorly written papers are often rejected!

The key is to be as brief and specific as possible without omitting essential details.

Good paper is:

✓ Clear

✓ Concise

✓ Correct

✓ Accurate

Submit your manuscripts to: cityhillsproofreading@gmail.com, manuscripts@cityhillsproofreading.com, articles@cityhillsproofreading.com, papers@cityhillsproofreading.com

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$500 (USD) for manuscripts in the range of 91-100 pages

Also, we allow discount for multiple manuscripts and organizations/institutes that requires our services on a regular basis.

# COMMON TRAPS

Good writing avoids the following traps:

× Repetition

× Redundancy

× Ambiguity

× Exaggeration

× Incorrect use of „etc." or „and so on"

Vary the sentences used when writing the abstract or describing findings at the end of the introduction.

Do not copy text from other sections verbatim!

Avoid words with the same meaning in the same sentence, e.g. „_In addition_, there where _also_ described some …"

# **Eliminate Redundant Words**

✓ Cutting redundant words like tautologies can help create stronger, more direct sentences.

✓ Tautologies are expressions or phrases that repeat the same information.

✓ They take up unnecessary space and can distract your reader.

✓ Getting rid of them simplifies sentences and gets your point across faster.

**Wordy:** In my opinion, I think that's a problem.

**Concise:** In my opinion, that's a problem.

**Wordy:** The course had several necessary requirements.

**Concise:** The course had several requirements

# Strengthen Weak Adjectives

✓ Using strong, descriptive adjectives helps trim down sentence length.

✓ Look for places where you've used two words to describe something when one would do.

✓ Strengthening your vocabulary can help you ensure that you're using the best word for the situation and that all of your words deserve to be in your sentence.

✓ Plus, strong adjectives make your writing more vibrant!

**Wordy:** Brunch was very good.
**Concise:** Brunch was superb.

**Wordy:** She struggled to sit through his really boring speech.
**Concise:** She struggled to sit through his tedious speech.

# Remove Vague Nouns

✓ Do all of your nouns actually move your point forward?

✓ If not, it may be time to say goodbye.

✓ Eliminating these unnecessary words will help make your writing more direct and clear.

**Wordy:** Career growth was an important factor in why I decided to join.

**Concise:** I joined to advance my career.

**Wordy:** I'm interested in the areas of history and biology.

**Concise:** I'm interested in history and biology.

# Eliminate Filler Words

✓ Filler words are words that add no meaning or value to a sentence and simply "fill" the space.

✓ They can be easily removed or replaced, but often inadvertently creep up in writing since we're so used to using them in our speech.

- **Wordy:** For all intents and purposes, this project will be outsourced.
- **Concise:** This project will be outsourced.
- **Wordy:** Needless to say, I think we should get grilled cheese.
- **Concise:** We should get grilled cheese.

# Construct Active Sentences

✓ Some sentence structures tend to be wordier than others. Although the passive voice isn't incorrect and is completely fine to use in moderation, it's often a weaker type of sentence construction. If you find yourself trending towards using the passive voice because you think it sounds a bit fancier or softens something unpleasant, remember that active voice sets a stronger and more direct tone.

✓ Keep most of your sentences in active voice—you'll find that they also tend to be more concise.

- **Wordy:** If this was something caused on our end, it might be something to be aware of.

- **Concise:** We should be aware of this in case something on our end caused it.

- **Wordy:** The error message was written by robots.

- **Concise:** Robots wrote the error message.

# USE LANGUAGE EDITING SERVICES

If you have doubts:

- Use language editing services that are commercially available to polish the language in your manuscript prior to journal submission!

- Do not waste your, reviewers' and editor's time!

- Your manuscript is precious – invest in it!

- Do not expose to reject the article and prolonging the publication of your research due to the poor language!

- Ask any expert in your field (e.g. your tutor) to read your manuscript prior to submission!

Thus, we urge Authors and PhD students to send their articles to the email below.

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| 21-30 | 140      |
| 31-45 | 170      |
| 46-50 | 200      |
| 51-55 | 250      |

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| 11-20 | 110      |
| 21-30 | 140      |
| 31-45 | 170      |
| 46-50 | 200      |
| 51-55 | 250      |

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https://www.grammarly.com/office-addin/downloading

# USE GRAMMAR PROOF-READERS

The grammar proof-readers find out lot's of common mistakes and propose corrections, e.g.:



https://www.grammarly.com/office-addin/downloading

# HOW TO AIM FOR THE BEST PAPER AWARD?

✓ Your paper should talk about something known to many researchers and be not too specific in its topic.

✓ The topic must be interesting, up-to-date, new, or presenting a novel approaches to the known problems.

✓ The presented method, algorithm, or approach must be clear and concise.

✓ The paper structure must be correct and contain all necessary elements like:

  ✓ The introduction explaining the aims, tasks, and a significance description and references to other papers (possibly not older than 5 years),

  ✓ concise and clear description of your solution,

  ✓ well-described and commented comparisons (tables, charts)

  ✓ and illustration (figures, samples) of its work on possibly many representative data or cases,

  ✓ and a clear description of the achieved results in view of other well-known methods or approaches.

✓ All reviewers must easy understand what and why are you presenting, how the goals are achieved, and what problem is solved thanks to it.

✓ It must present a novel or groundbreaking solution with a theoretical (mathematical) proof and comparisons.

✓ The comparisons must be trustworthy, objective, and sufficient to confirm the validity of the presented thesis, methods, or algorithms.

✓ Your language must be perfect and proof-read!

✓ Try to do your best (as for the best journal where you want to place your work) to explain readers what and why you solved and that this solution in enough general and applicable to other cases.

**Then you have a chance, but not certainty to get the BEST PAPER AWARD!**

Springer

**ICAISC 2017**
**16th International Conference on Artificial Intelligence and Soft Computing**
**June 11-15, 2017, Zakopane, Poland**

**ICAISC Best Paper Award 2017**

Awarded to

**Adrian Horzyk**

„Neurons Can Sort Data Efficiently"

# **Checklist for Final Draft**

## Check for consistency, i.e.:

- contradictory things,
- conditions that cannot be true or are not satisfied.

## Check for numerical consistency of figures and tables:

- Whether they match with references?
- Whether the presented data are consistent with the description?

## Check your references:

- Whether they supply the reader with promised information?
- Whether a reference cites a secondary source rather than a primary (original) source?
- Whether authors misinterpreted or exaggerated the findings from the original source?
- Whether references are misnumbered?
- Whether references are not outdated?
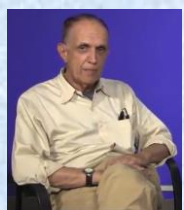
# Key Elements looked by Journal Editors
## Interview with Prof. Dr. Bradley Efron

- Technical and statistical sites are both important.
- Communication is the major goal, so do not focus on publication your manuscript but to be read, so make your paper pleasant to read!
- Encourage readers to read early teling them what the paper is about.
- Good papers should have some elements that surprise readers, i.e. that are interesting for readers. Readers want to learn from your manuscript something new and interesting.
- If you make your paper easy to read, it vastly increase your chances of success!
- One of the most numerous mistakes in the papers is that authors do not match the paper carefully to the appropriate journal. Bear in mind that readers of a given magazine are looking for the specific information in it, so Editors must take care about appropriate matching of the published papers.
- Another often mistake is that authors use heavy notations and dense material that slow readers down when reading. Many times papers are vague about the goals and methods of the paper. Therefore, be clear when explaining what the paper is about, especially in the abstract and introduction. It is crucial because editors read abstacts and introductions to select reviewers.
- Good graphics is very important because they help a lot to understand and imagine the problem or the writers' solutions. The format should be attractive for readers.
- Space out equations, graphics, and definitions.
- Organize information with bullet points where appropriate because they are easier to be extracted from the text.
- Avoid clunky language that distracts or slows down readers. Do not be fancy but understandable!
- In your first papers, you can notice „It is may first paper/try to …" but editors like fresh ideas!
- Many times fresh ideas are rejected by tradition-minded referees.
- Papers should impress readers so publish few but ripe!

# Key Elements looked by Journal Editors
## Interview with Prof. Dr. George Lundberg
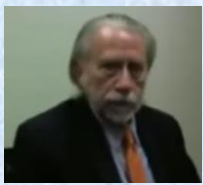
- For readers, the most important is the content that best fits what the journal likes to publish and meets the author's goals!

- The main mistake is to select submitting an article to journal poorly suited to the topic of the article.

- Very common mistake is that writing is too long.

- Another mistake is not following the instructions for authors.

- If the editor or reviewers smell out that the authors did not follow the instruction for authors, they usually do not trust that the paper was prepared carefully and according to the topics of the journal!

- Do not draw conclusions that go beyond the data (very common problem)!

- Be ambitious, yet also realistic, humble, and honest.

- Give you and other authors time for editing and collaboration. Do not hurry too much with the publication. On the other hand, do not hesitate to publish good results! „Publish or perish!"

- Respect the publishing process, but maintain your confidence.

- Be confident, but do not hit the moon for the first time.

- Rejections happen to everyone! Accept rejection as a good likelihood because high-impact journals unsolicited manuscripts at a rate of 95%. The majority of papers are rejected!

- Authors should be very pleased when a good journal is interested in publishing their work.

- Resubmitted papers should strongly answer and consider the reviewers' comments. Either make the changes or argue effectively as to why you did not. Respond via a cover letter for the revised manuscript. Indicate precisely what and where was changed according to the reviewers comments.

- It is stupid to get angry with the reviewers comments. Do not sent unrevised paper to another journal!

- Open access publishing in science will become the rule. Authors will values the merits of their papers more carefully when they have to pay for publishing their research results.

# Key Elements looked by Journal Editors
## Interview with Prof. Dr. Gary Friedman

- Editors looks for novelty and avoid publishing „findings" that are already well-known!
- Interest of the readers of the particular journal, i.e. suitability for the specific journal.
- Good writing and English (a real problem with non-native speakers).
- Your writing should be concise. Many times, papers are too long having too much materials which are not needed.
- The „salami" problem occurs when the research is sliced too thinly.
- Be clear and concise. Avoid repetitions (in discussion what was already said in the introduction, do not say something in results what was already written in the method section etc.).
- Avoid wordiness.
- Keep the introduction brief (say why you did the study, explain the background, what you try to accomplish, and leave all the discussion and reviews of the literature for the discussion section).
- Do not repeat numerical information from the Tables in the Results section. Describe the table in words.
- Papers should be understandable to an educated audience. It should not be full of jargon understand only by a narrow circle of specialists. Editors welcome readable papers.
- A paper should not read like a Ph.D. thesis.
- State only the important (not obvious) strengths and limitations relevant to the study.
- Acceptance is not guaranteed. Be encouraged by the opportunity to revise and resubmit the paper.
- List and respond to every reviewers' comment separately. Fix the problem or explain why you didn't fix it.
- Show to the editor where you made the changes (in what section and what paragraph, what page etc.).
- Be polite when answering to the reviews.
- When definitely rejected, fix all problems and submit it elsewhere, and do not take rejection personally. Understand that reviewers may be from a different discipline or can have bad days too! The system is not perfect!
- Negative findings would be more valued. They stop other scientists to go a wrong way.

# PEER-REVIEW PROCESS

The better journal have you chosen,
the more difficulties you can come across.
Be ready for them, do not give up!
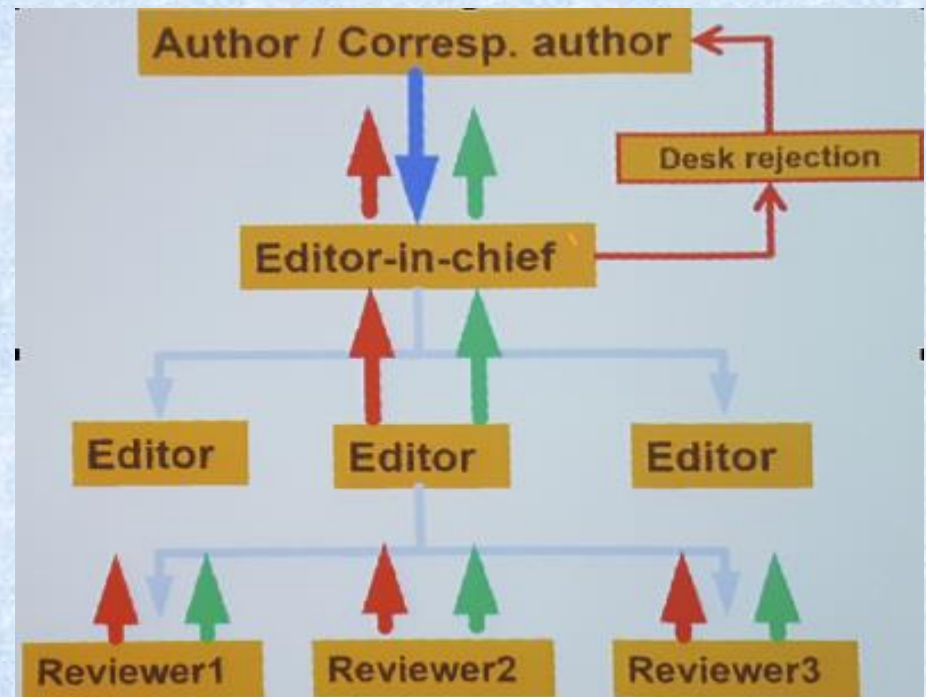
# PEER-REVIEW PROCESS

➤ If you become an author (of a good journal), you can be asked for a peer-review. Do not refuse this chance!

➤ Focus on the advantages to be a reviewer!

➤ Young reviewers usually know new methods and are more careful.

➤ You can observe and learn the backend of the publication process.

➤ Look for both positives and negatives, however it is natural to look for the problems more prior than for the strength of the paper.

➤ Take into account that the young scientists' confidence and career depend on your critique and review tone. Do not discourage them! Be constructive in your criticism. Try to be positive when criticize.

➤ Be polite and use a positive tone, e.g. „The writing and presentation could be improved." instead of saying „The paper is poorly written."

➤ Criticize the work, not the authors.

➤ Avoid generalizations that can harm; point out specific errors.

➤ Avoid lecturing to the authors.

# TYPES OF PEER-REVIEW PROCESSES

➢ Common for conferences (authors are known to the blinded reviewers)

➢ Open (neither reviewers nor authors are blinded, it enforces a more friendly tone)

➢ Single-blind (most common, authors are blinded to reviewers)

➢ Double-blind (reviewers are additionally blinded to authors)

➢ Triple-blind (there is an additional rebuttal period during which authors are blinded)

➢ Post-publication Peer Review (blogs, online comments)

# CHECKLIST OF PEER-REVIEW PROCESSES

**What is a typical checklist of the peer-review processes and reviewer guidelines you should take care of when writing your paper or when reviewing another paper?**

1. Make sure that the submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
2. Does the submission match with the journal topics?
3. Does the article contain significant new contributions compared to already published works of the same or other authors? Does it provide interesting information for potential readers?
4. Is the title sound and clear? Does the abstract clearly explain the contribution? Are the character and contents of the paper clear from the title and abstract?
5. Does Introduction provide relevant information for the article topic? Does it provide understandable information about the problem addressed, about contribution, and about motivation and need for such contribution? Is it understandable for anyone in the computer science field?
6. Does the article provide a relevant and up-to-date survey of state-of-the-art relevant to the topic of the paper? If the paper is interdisciplinary, does it overview all relevant state-of-the-art in related fields?
7. Does the paper appropriately compare the performance of proposed methodologies with those found in the published literature? Are the references provided up to date? Is adequate credit given to other contributors in the field and are references sufficiently complete? Where available, URLs for the references have been provided?
8. Is the evaluation methodology provided and appropriately explained? Is the evaluation method or methodology used relevant for the article topic? If the contribution is evaluated experimentally, are the used data and dataset relevant and significant for the article topic? Is the size of the experiment statistically significant? If the contribution is evaluated by other methods, such as providing use cases, providing formal proof, or other, is it significant? Does it prove the contribution?
9. Is the scientific contribution of the paper significant? Is a comparison to state-of-the-art and existing methods provided, or does it address the problem in a novel way that is somehow measurable?
10. Is the contribution properly explained in an understandable way? Is the paper clearly, concisely, accurately, and logically written?
11. Does the text adhere to the stylistic and bibliographic requirements outlined in the Author Guidelines?
12. Is the bibliography and the related or compared methods up-to-date?

# HOW TO START A PEER-REVIEW PROCESS?

1. Scan the abstract.
2. Jump to the data: review the tables na figures first:
   - Draw your own conclusions.
   - Check whether tables and figures stand on their own?
   - Are there any obvious statistical errors?
   - Is there repetitive information?
3. Read the paper once through:
   - Check whether the conclusions match the data?
   - Is the paper clearly written or did you struggle to get through it?
   - Is the length of the paper justified given the amount of new information that the data provide?
   - Is the language correct?
   - Is the paper readable?
4. Read the introduction carefully:
   - Is it sufficiently succinct?
   - Does it roughly follow: known → unknown → research question/hypothesis?
   - Is there a clear statement of the hypothesis or aim of the study?
   - Is there detailed information about what was done that belongs in the methods?
   - Is there information about what was found that belongs in results?
   - Is there distracting information about previous studies or mechanisms that are not directely relevant to the hypothesis being tested? If so, suggest to move it to the discussion.
   - Do the authors tell you what haps in the literature they are trying to fill in?

# HOW TO START A PEER-REVIEW PROCESS?

5. Read the methods carefully:
   - Scan this section to find answers to your questions about the data.
   - Where things measured objectively or subjectively? What instruments were used?
   - Are there flaws in the study design, such as no control group or any measure of verification?
   - Read the statistics section carefully.

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 facts that the magnitude is small or they done multiple subgroup analyses?
   - Is this section unnecessarily long?
   - Does this section complement or repeat what is in the tables and figures?

# HOW TO START A PEER-REVIEW PROCESS?

7. Look at each table and figure:
   - Did the authors choose the correct statistics?
   - Are there multiple tables or figures that tell the same story?
   - Is there evidence or cherry-picking or purposefull omitting data?
   - Are any graphs misleading, e.g. through manipulation of area or axes?
   - Is the treatment/training group/data always compared with a proper control/testing group/data?
   - Are there inconsistencies in the data they present from one table to the next one?
   - Did the authors make transcribing errors when going from the data in tables/results to the abstract?

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?
   - Are the references that they cite current?
   - Have they omitted key references?

# HOW TO WRITE A REVIEW?

1. Start with a one-paragraph „general overview.":
   - State what you think is the major finding and importance of the work.
   - List out several (2-3 or main) strengths of the paper, tell what is positive, and give encouraging statements about the work. Start with positives before criticizing! Bear in mind than the criticism is much better accepted when preceded by the appreciation of the strengths, e.g.:
     - „This is an interesting manuscript with several strength."
     - „The authors should be commended for …"
     - „The findings that … is (really) important/interesting."
   - State one or two major limitations (if there are any) to study design, writing/presentation, or conslusions, e.g.:
     - „The study is limited because there is no validation/comparison/evaluation method of the results."
     - „The overall writing/presentation needs improvement."
     - „The description of … is confusing."
     - „The authors may have over-stated their findings."
     - „The paper provides only weak evidence for its conclusions."
     - „The study is exploratory, not hypothesis-driven." etc.
   - Do not reveal the authors your overall recommendation at this stage (rejection or acceptance)!

2. Give the authors a numbered list (5 to 15) of your criticisms or suggestions for revision:
   - Point out specific mistakes.
   - List the issues that you found in your review.
   - Give specific recommendation for revision.
   - Be specific as possible. Generalizations are not helpful.
   - Do not spend your time nit-picking and pointing out every mistake.
   - 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 example, e.g. „The manuscript contains typos, such as …"

# COMENTS TO EDITOR

Comments to editor are not visible for authors.

1. Fill out journal grading sheet (if applicable).

2. Choose your recommendation:
   - Reject (definitely)
   - Reject with opportunity to revise (and resubmit).
   - Accept with minor revisions (that do not need to be revised again carefully by reviewers).
   - Accept (without revisions)

3. Give a succinct overall statement to the editors that justifies your ranking. Be frank and straightforward with the editors about your opinion and concerns.
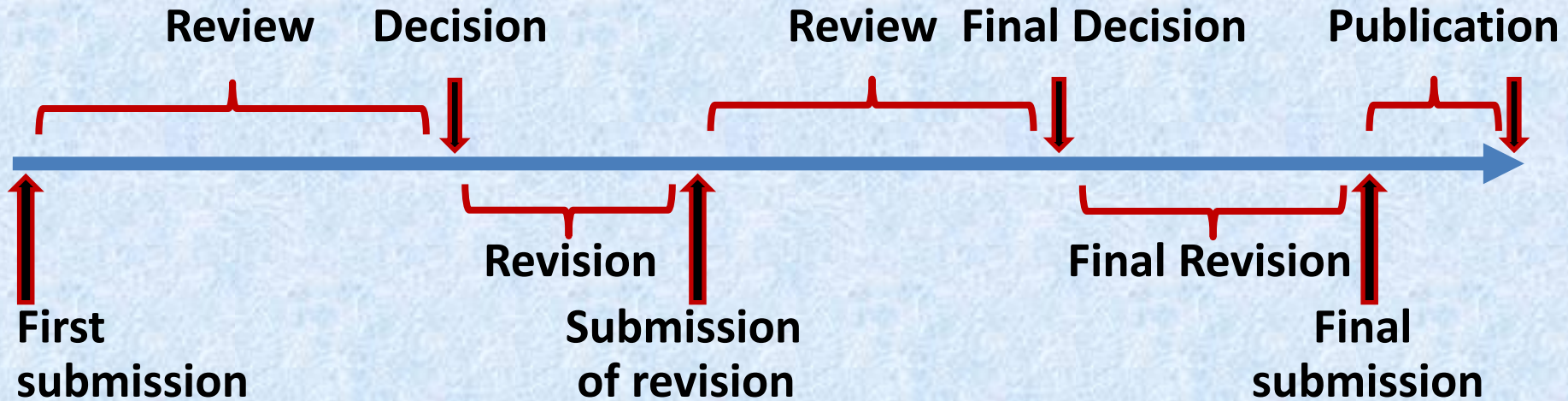
# GRADING SHEETS

Grading sheets are used to precise the reviews and evaluate various cathegories:

1. Impact of Research
2. Originality of Results
3. Methodology and Data Quality
4. Compliance with the Topics of the Journal/Conference
5. Language
6. Overall Manuscript Rank

# MANUSCRIPT SUBMISSION MILESTONES

**Review** **Decision** **Review** **Final Decision** **Publication**

**Revision**

**First submission** **Submission of revision** **Final Revision** **Final submission**

**Always carefully study the reviewers' comments and prepare a detailed and polite letter of your response:**

- Respond to all points (cite them in your letter), even if you disagree with a reviewer, provide a polite, scientifically solid rebuttal rather than ignore their comments.

- Provide page and line numbers when referring to revisions made in the manuscript.

- Perform additional calculations, computations, examples, experiments, figures, tables or other changes if required – these usually serve to make the final paper stronger.

- State specifically what changes you have made to address the reviewers' comments, mentioning the page and line nubmer where changes have been made.

- Avoid repeating the same response over and over, if a similar comment is made by multiple people explain your position once and refer back to your earlier response in responses to other reviewers or the editor.

# TIME STEPS OF SUBMISSION

Revision process consists of a few steps:

1.  First, the Editor decides whether to qualify your paper to the review process.

2.  He searches and chooses reviewers and asks them for their agreement to review the paper:

    ➢ The status of your paper is then „reviewed".

3.  He gets their reviews after some time (usually after 2 to 8 weeks).

4.  Next, he makes his decision on the basis of the reviews (1 or 2 weeks):

    ➢ „major revision" means the necessity to do substantial changes of the paper and after the revision, the paper is sent to the reviewers once again to judge whether the changes satisfy them;

    ➢ „minor revision" means that the paper is quite well written and requires only minor revisions, so after revising the paper, it is not usually passed to the reviewers again, but the Editor decides about acceptance.

5.  You get the answer usually after 3-4 months after sending the paper.

# SUBMISSION PROCESS

1. Possibly before writing, identify a journal for submission, i.e. who are its readers and whether they care about your data and results?

2. Find and follow the online instructions for authors to correctly write and format your manuscript.

3. Agree with all authors on the final version of the manuscript before submitting it. All authors should fill and sign copyright transfer and conflict of interest forms.

4. Submit your manuscript online (done by the corresponding author).

5. You get one of the following outcomes:

   1. Accepted outright (happens very rarely, usually only paper solicited by the editor)

   2. Accepted pending minor revisions (positive outcome – happens rarely)

   3. Rejected but revision and re-submission is possible after major changes (most of the papers), e.g. „*Your manuscript is **not accepted for publication**… However, if you feel that you can suitably address the reviewers' comments, then I invite you to **revise and resubmit** your manuscript.*" or „*Manuscript ID … entitled …, which you submitted to …, has been reviewed. In view of the criticisms in the reviews and based on the recommendation of the Associate Editor, I must **decline the manuscript for publication in … at this time**. However, a revised manuscript **may be submitted which takes into consideration these comments**. Please note that resubmitting your manuscript does not guarantee eventual acceptance, and that your revision will be subject to re-review by reviewers before a decision is rendered.*"

   4. Definite rejections - no resubmission is possible (you might be tempted to submit your manuscript elsewhere, but revise your paper carefully before sending your manuscript elsewhere! Use the feedback of the reviewers and make your paper better.).

Once your paper is accepted, carefully review final proofs!

# FIRST IMPRESSIONS OF REVIEWERS

Take care of the first impressions of your reviewers! The reviewers usually look at:

1. The title of the paper:
   - ➢ Whether is it clear, current, innovative, and interesting?
2. Who is the first author (and other authors)?
   - ➢ Is he or she already known in science?
   - ➢ What and where have he or she already published?
   - ➢ What is the main domain of his or her study?
3. What do the figures and tables present?
   - ➢ Are the results significant or groundbreaking?
   - ➢ Are the figures illustrative and intrigue?
   - ➢ Are the illustrated comparisons convincing and sufficient enough?
4. Are the abstract and the conclusions adequate, significant, enough relevant in the field and prepared with state of the art?

**NEXT IMPRESSIONS ARE ALSO IMPORTANT:**

1. Is the language of the paper correct?
2. Is the paper carefully written?

However, after the first impressions reviewers usually set positive or negative to the subsequently read (or sometimes not read) paper!

# WHAT REVIEWERS ARE CHECKING?

- Is the topic of the paper interesting for the readers of the journal?
- Is the topic well-associated with thematic scope of the journal?
- Is the topic consistent with the content of the article?
- What is new in the paper?
- What theoretical and practical implications are included in the paper?
- Are the results suitable and with the state of the art in the discipline?
- Do result broaden the current knowledge in the discipline?
- Are methods precisely described?
- Are results impartial and get by reliable methods?
- Is the description of the research clear and understandable?
- Are the used arguments logic and consistent?
- Are the achieved results quantitatively evaluated?
- Are the references adequate and current (not outdated)?
- Is the interpretation of the results adequate and correct?
- Are results interesting for readers of the journal?
- Is the language correct?

# ANSWERS TO THE REVIEWERS

➤ Start your answer politely and thank for the reviewers work:
*„We would like to express our gratitude to anonymous reviewers for their comments, and their helpful work to make our paper better. We have revised
our manuscript and addressed the issues raised by the reviewer…"* or
*„We appreciate your helpful comments and those of the reviewers. We feel that the manuscript is now greatly improved."*

➤ Address and answer every question of the reviewers.

➤ Cite their notices in order to make it easier to associate your answers with
the reviewers' notices and allow the editor and reviewers to evaluate reliability and consistency, e.g.
*„We have made revisions based on the comments/suggestions of all Reviewers. The comments of each reviewer are numbered below, with our response (clarifications and changes) following."*

➤ Try to go along all the wishes of the reviewers if possible.

➤ Try to clarify pointed things by the reviewers and add adequate explanations,
e.g. *„We agree with Reviewer X that the section on Y was too abbreviated. Therefore, we have added a paragraph that highlights Z (paragraph no. P)."*

➤ If you do not agree with the reviewers' notices, describe your arguments politely.

➤ If you disagree with the reviewers' comments, then describe reviewers why did not you make the change, but give the thoughtful and respectful response to each specific comment.

➤ Some journals require to resubmit the paper with changes in the tracking mode to see where the changes were really made.

❖ Do not suggest that he or she has not understood your paper.

❖ Do not be defensive (however, it is a natural reaction to the criticism)!

❖ Do not argue with the reviewers.

❖ Do not answer immediately (at first after 2-3 days), on the other hand,
your answers will seem to be ill-considered.

✓ Show and proof the originality of your work if he doubts.

✓ Show more results and comparisons if asked for it.

✓ Take care about the quality of the writing and adequate presentation of the data and results in tables or graphs because about 60% of reviewers' criticisms pertain to the quality of those, and about 40% of them pertain to the quality of the scientific work.

✓ Broaden the discussion and add references if necessary.

✓ Consult all your answers with all co-authors.

# ACCEPTING REJECTION

➤ Do not take it personally! 33% of average papers are rejected.

➤ Try to understand why the paper has been rejected?

➤ Evaluate honestly – will your paper meet the journal or conference requirements with the addition of more data or is another journal more appropriate?

➤ Do not resubmit your manuscript elsewhere without significant revisions addressing the reasons for rejection and checking the new Guide for Authors!

➤ In your cover letter, declare that the paper was rejected and name the journal.

➤ Include the referees' reports and show how each comment has been addressed.

➤ Explain why you are submitting the paper to this journal and why you think that it is a more appropriate journal?

# MULTIPLE  SUBMISSIONS

➢ Multiple submissions save your time but waste editors'!

➢ The editorial process of your manuscript will be completely stopped if the duplicated submissions are discovered!!!

➢ Competing journals constantly exchange information on suspicious papers.

➢ You should not send your manuscripts to a second journal until you receive the final decision form the first one!

➢ Previously published papers should not be submitted to another journal!

➢ Short conference papers can be significantly expanded to consider subsequent submission for journal publication.

# PLAGIARISM

Federal Office of Science and Technology Policy (1999):

„Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit, including those obtained through confidential review of others' research proposals and manuscripts."

**If plagiarism or self-plagiarism is discovered journals publish the retraction notices and all authors lose their rights to further publication in these journals!!!**

# SELF-PLAGIARISM

Self-plagiarism means:

- copying or only slightly rewriting texts from your own previously published papers;

- Adding new data to already published data and presenting them as new results;

- Submitting identical or overlapping data to multiple journals.

The CrossCheck system looked for plagiarism, duplication and self-plagiarism had rejected 6% to 23% of submitted papers!

# GHOST AND GUEST AUTHORS

**Ghost authors** are writers-for-hire who draft manuscripts but are not listed as authors.

**Guest or „honorary" authors** are academic researchers who are minimally involved in a paper, but „lend" their name as an author (often the first author) to bolster the paper's credibility to publish papers in great journals.

# FABRICATION AND FALSIFICATION

**Fabrication** is making up data or results, and recording or reporting them.

**Falsification** is manipulating research materials, equipment, processes, or changing / omitting data or results such that the research is not accurately represented in the research record.

# MISTAKES YOU CANNOT FOLLOW!

- ❖ Refuse to read the previous literature published in your field
- ❖ Take the lazy route and plagiarize
- ❖ Omit key article components
- ❖ Disrespect previous publications
- ❖ Overestimate your contribution
- ❖ Excel in ambiguity and inconsistency
- ❖ Apply incorrect referencing of statements
- ❖ Prefer subjective over objective statements
- ❖ Give little care to grammar, spelling, figures and tables
- ❖ Ignore editor and reviewer comments.

# BIBLIOGRAPHY

Inspired by:

- Prof. Witold Pedrycz - lectures and remarks.
- Prof. Adam Liebert – the lecture on how to write a successful scientific papers.
- [The Stanford University course of writing papers on Coursera](#).
- [Grammarly Blog](#).

## Preparing Research Articles

Bruce A. Thyer

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