Template and Guidelines for Writing a Scientific Paper

Thomas Kiebel, Michael Schulze, and Sebastian Zug
Institute of Embedded Systems and Operating Systems
Department of Distributed Systems
Otto-von-Guericke-University Magdeburg
{kiebel,mschulze,zug}@ivs.cs.uni-magdeburg.de

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Abstract — *The abstract should concisely summarize the contents of a paper. Since potential readers should be able to make their decision on the personal relevance based on the abstract, the abstract should clearly tell the reader what information he can expect to find in the paper. The most essential issue is the problem statement and the actual contribution of described work. The authors should always keep in mind, that the abstract is the most frequently read part of a paper. It should contain at least 70 and at most 120 words.*

1 Introduction

This document serves two purposes. First it is a template and example for a scientific paper. Second, the text in the sections contains useful information on structuring and writing your first paper. We recommend to read the following sections carefully in order to avoid common mistakes.

The introduction should consist of three parts (as paragraphs, not to be structured into multiple headings):

The first part deals with the *background* of the work and describes the field of research. It should also elaborate on the *general problem statement* and the *relevance?*

The second part should describe the focus of the paper, typically the paragraph starts with a phrase like "*The objective of this paper is ...*".

The last part should describe the structure of the paper, for example: The paper is structured as follows: Section 2 explains the overall structure for different types of scientific papers. Section 3 gives some hints on writing and covers also acronyms, figures and tables. Section 4 gives a recommendation on LaTeX and explains how to get the necessary tools. Section 5 presents a checklist of common mistakes to avoid. Section 6 concludes the paper.

2 Structure of Your Paper

2.1 Research Papers

The structuring of your sections heavily depends on the *type* of your paper. For example if you have done some research encompassing an experimental setup and measurements, your paper could be possibly structured as follows:

- Abstract; Kurzfassung, Abstract
- Introduction; Einleitung
- Related Work; Verwandte Arbeiten
- Basic concepts, Concepts and Terms; Grundbegriffe, Grundkonzepte und Definitionen
- Experimental setup, Applied Method; Versuchsaufbau, Vorgangsweise
- Results; (Experimentielle) Ergebnisse
- Discussion, Proof; Diskussion, Beweis
- Conclusion (and Outlook), Summary; Schlussfolgerungen, Fazit; Zusammenfassung (und Ausblick)
- References; Literaturverzeichnis

The colons separate possible variants in naming the sections. The variants after the semicolon give the German counterparts. If some text is in brackets, this text could be optionally added to the given variant (but used without brackets).

The section on related work might also appear right before the concluding section.

The section on basic concepts should introduce the basic terms and concepts that are needed to understand the following sections of the paper. Sometimes, it is not necessary to have a separate section on basic concepts, if the basic concepts are well-known or can be covered in the introduction.

The experimental setup typically describes the used hardware, software, and the implementation. If your implementation has a fancy name, you could also name that section that way (for example *KHUFU System Description*.

Most papers you will read for your first paper will likely be such *research papers*.

2.2 Survey Papers

If you do a literature research comparing some approaches, your paper could be possibly structured as follows:

- Abstract; Kurzfassung, Abstract
- Introduction; Einleitung

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ML Morrison

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Connor s experience as both research scientist and educator synergize to improve both the science and art of scientific writing If the authors goal is to give scientists the tools to write and publish compelling well documented clear narratives that convey their work honestly and in proper context they have succeeded admirably Veterinary Pathology July 2009 The book is clearly written has a logical step by step structure is easy to read and contains a lot of sensible advice about how to get scientific work published in international journals The book is a most useful addition to the literature covering scientific writing Aquaculture International April 2009 Writing Scientific Research Articles Strategy and Steps guides authors in how to write as well as what to write to improve their chances of having their articles accepted for publication in international peer reviewed journals The book is designed for scientists who use English as a first or an additional langua for research students and those who teach them paper writing skills and for early career researchers wanting to hone their skills as authors and mentors It provides clear processes for selecting target journals and writing each section of a manuscript starting with the results The stepwise learning process uses practical exercises to develop writing and data presentation skills through analysis of well written example papers Strategies are presented for responding to referee comments as well as ideas for developing discipline specific English language skills for manuscript writing The book is designed for use by individuals or in a class setting Visit the companion site at www writeresearch com au for more information *Mastering Academic Writing in the Sciences* Marialuisa Aliotta,2018-04-17 This book provides a comprehensive and coherent step by step guide to writing in scientific academic disciplines It is an invaluable resource for those working on a PhD thesis research paper dissertation or report Writing these documents can be a long and arduous experience for students and their supervisors and even for experienced researchers However this book can hold the key to success Mapping the steps involved in the writing process from acquiring and organizing sources of information to revising early drafts to proofreading the final product it provides clear guidance on what to write and how best to write it Features Step by step approach to academic writing in scientific disciplines Ideal guidance for PhD theses papers grant applications reports and more Includes worked out examples from real research papers and PhD theses and templates and worksheets are available online to help readers put specific tasks into practice **Integrity of Scientific Research** Joel Faintuch,Salomão Faintuch,2022-10-13 This book provides a scientific and ethical approach to all forms of fraud and misconduct focusing on a scholarly however practice oriented description of the problems roots and potential solutions Organized in dedicated parts an international team of experts systematically analyzes the most prevalent forms of misconduct ghost writing pseudo science dubious trials predatory journals fake news mistreatment and harassment in research publications at academic institutions and in the professional and healthcare environment A special focus is given to corrective interventions and the role of prevention education and training Comprehensive in its scope the book offers an easy to read overview along with a number of real cases for experienced and novice personnel alike The significance of scientific integrity and research ethics increased during

the last couple of years and ethic committees and offices have become an integral part at universities hospitals research institutions government agencies and major private organizations all over the world Thus this book provides an indispensable comprehensive overview across disciplines and for everybody working in research and affiliated institutions Chapter 37 is available open access under a Creative Commons Attribution 4 0 International License via link springer com **JOURNAL OF SCIENCE AND ENGINEERING** , **The Essentials of Political Analysis** Philip H. Pollock III,Barry C. Edwards,2024-12-20 Equip students with the skills and confidence they need to conduct political analyses and critically assess statistical research In the Seventh Edition of The Essentials of Political Science bestselling authors Philip H Pollock III and Barry C Edwards build students analytic abilities and develop their statistical reasoning with new data fresh exercises and clear examples This brief and reader friendly guide walks students through the essentials defining measurement formulating and testing hypotheses measuring variables while using key terms chapter opening objectives over 80 tables and figures and practical exercises to get them using and applying their new skills Using Excel R SPSS or STATA Companion workbooks featuring statistical software instructions and exercises help your students apply their knowledge *Research in Education* ,1971 Abstracts of Papers American Association for the Advancement of Science. National Meeting,1989 Advanced Materials Researches, Engineering and Manufacturing Technologies in Industry Hong Hua Tan,2013-09-04 Selected peer reviewed papers from the 2013 2nd International Symposium on Materials Science and Engineering Technology ISMSET 2013 July 27 29 2013 Singapore **Advance Papers of the Conference** ,1975 **Writing Papers in the Biological Sciences** Victoria E. McMillan,2012-01-15 Written by a professional biologist who is also an experienced writing teacher this comprehensive guide for students writing in biology zoology and botany provides detailed instruction on researching drafting revising and documenting papers reviews poster presentations and other forms of writing *Popular Science Monthly* ,1930 *Advance Papers* ,1975 Proceedings of the Seventh International Joint Conference on Artificial Intelligence Ann Drinan,1981 **Engineering** ,1922 Papers Presented at the ... Meeting American Chemical Society. Division of Polymer Chemistry,1991 **Yearbook and ... Proceedings** Casualty Actuarial Society,2007 Yale Scientific ,2001 *Scientific American* ,1928 Monthly magazine devoted to topics of general scientific interest Eloquent Science David M. Schultz,2009 Eloquent Science A Practical Guide to Becoming a Better Writer Speaker Atmospheric Scientist was conceived from a workshop taught over six years to undergraduate students at a summer research experience The volume is divided into three parts writing reviewing and speaking and offers tips on poster presentations media communication and advice for non native speakers of English as well as appendices on proper punctuation usage and meteorological concepts Sidebars written by experts in the field offer diverse viewpoints on reference topics important to the reader and a recommended reading section at the end of the book guides the reader to the best additional resources

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