Seminar "Current Trends for Self-* Systems"
Introduction to Scientific Writing and Presentation Techniques

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Content

2

Goals of the Seminar

- Independent research of a given topic is based on:
  - Search for related literature
  - Define domain specific terms
  - Identify the research questions of the topic domain
  - Understand the solution approaches
- Written seminar paper consists of:
  - Structured elaboration
  - Clear presentation of questions and results
  - Citing and discussion of existing work
  - A glossary (optional)

Goals of the Seminar

- Seminar presentation is based on:
  - Structured talk
  - Clear presentation of questions and results
  - Slide preparation for the presenatation
  - Answering the questions related to the presenatation
- Scientific discussion requires to:
  - Take an active part in the discussion
  - Formulate and ask questions

Content

1. Goals of the seminar
2. Scientific Organizations / Publications
3. Instructions for the seminar paper writing
4. Presentation tips

Scientific Organizations

- ACM – Association for Computing Machinery
  - http://www.acm.org/
  - Special Interest Groups (SIG)
    - SIGSOFT – Software Engineering
      - http://www.sigsoft.org/

- IEEE CS (Computer Science)
  - http://www.computer.org/portal/web/guest/home

- GI – Gesellschaft für Informatik
  - http://www.gi.de/
  - Fachbereiche / Fachgruppen

Scientific Publications

- (peer) reviewed publications

- Books
- Journals
  - Examples
    - Software and Systems Modeling
    - IEEE Software
    - IEEE Transactions on Software Engineering
- Proceedings
  - Conference, Symposium, Workshop
    - Examples
      - ICSE – International Conference on Software Engineering
        - http://2011.icse-conferences.org/
      - SEAMS - Symposium on Software Engineering for Adaptive and Self-Managed Systems
        - http://www.hpi.uni-potsdam.de/giese/gforge/events/2011/seams2011/
- Technical Report

Scientific Publications: Organization

- Journal
  - Publisher (e.g., Springer, Elsevier, …)
  - Editor-in-Chief
  - Editorial Board
  - Reviewers

- Conference/Workshop
  - General Chair
  - Programme Chair
  - Programme Committee

- Publication Cycle:
  - think/research – write – submit – review – (if accepted) finalize - print

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9

Format of the Seminar Paper

- Basic structure of the seminar paper:
  - Front page
  - Content of the paper (15 pages)
    - Including references and figures

- Writing style
  - Template „LNCS" (Lecture Notes in Computer Science)
    - You can find style files here:

http://www.springer.com/computer/lncs?SGWID=0-164-7-72376-0

Front Page

- Title of the seminar
- Semester
- Title of the paper
- Author's information:
  - Name
  - Email
  - Matriculation number
- Supervisor's name

Content of the Paper

- Title
- Author
- Keywords
- Abstract

1. Introduction / motivation
2. Background / problem description / discussion of the related work
3. Description of the approach
4. Example/ proof-of-concept / evaluation/ critical reflection
5. Conclusion

- References

Abstract

- Size: 5 - 10 lines

- Description of the main message!

- Description of the scientific contribution

- The abstract must answer 4 questions:
  - What is the problem?
  - Why is the problem a problem?
  - What is the solution?
  - Why is the solution a solution?

13

1. Introduction / Motivation

- Topic description in context of the general problem domain
  - Logically guide the reader to your point of view
  - Logical description of the problem statement
  - Clear description of why a solution is required
  - Clear description of the requirements for the solution
  - Description (on an abstract level) of the proposed solution
  - Description of the paper structure

2. Background / Related Work

- Each section starts with a brief introduction about its content
- Task specification
  - Which solutions already exist?
    - Literature survey - it is different from an enumeration of the literature!
    - Citing of the literature
    - Deriving the requirements for a new solution approach
  - Precise requirement definition for the described solution approach
- Short description of the technical foundations for the described solution approach
  - Summary of the used approaches

3. Description of the Approach

- Motivating / integrated example
- Highlighting the most important results with reasoning
- Diagrams for further illustration

4. Example / Evaluation

- Explaination on the basis of a detailed example
- Critical reflection
    - highlighting the strengths
    - pointing out the weaknesses

17

5. Conclusion

- Short summary of the paper content
- Balancing with the requirements specified earlier
- Open questions
  - What can be further investigated?

References

- Approximately 10 references
- Not web-page links only
- Not Wikipedia only
- Original literature

References

For web-page links
- Complete information (author/organization, web-link)
- Additionally, information about when it was accessed last time

For independently published sources (e.g. books)
- Name(s) of the author(s)
- Title
- Publishing place
- Publishing year of the edition

[1] Agha, G.: *ACTORS – A Model of Concurrent Computation*, The MIT Press, Cambridge, MA, 1986

References

For non-independently published sources (articles in journals, proceedings, etc.)

- Name(s) of the author(s)
- Title of the article
- Title of the editor
- Series
- Volume number
- Publishing place and year
- Page number of the source

[2] Adler, R. M.: *Distributed Coordination Models for Client/Server Computing*, IEEE Computer, 28(4):14-22, Apr. 1995

21

Additional Tips: Writing Style

- Should be appropriate for the topic and target audience

  - No extensive explanation of the areas, whose knowledge is already existing

  but also

  - No explanation totally incomprehensible for the reader

Additional Tips: Diagrams

- Diagrams are often very helpful and facilitate the understanding significantly
- Diagrams must be explained in the text!
- Diagram must be numbered
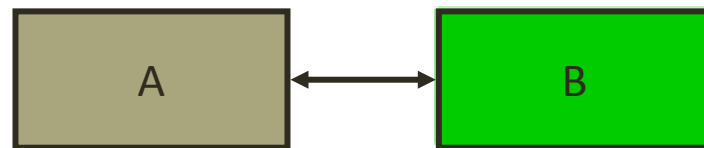- A caption must be given for the diagram

Fig. 1: The Relationship between A and B

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Organisation of the Presentation

- Media
  - Beamer
  - PowerPoint or PDF presentation
  - Whiteboard
  - Handwritten notes, etc.

- Structure
  - Title slide (topic, name, date)
  - Outline
  - Slides that describe the seminar work
  - Summary

Slides Organisation

- Not crowded
- Not use too small font
- **Not too colorful**
- Better keywords then the whole sentence

Example

- This text is written in 32 pt

- This text is written in 28 pt

- This text is written in 24 pt

- This text is written in 20 pt

- This text is written in 18 pt

- This text is written in 16 pt

- This text is written in 14 pt

- This text is written in 12 pt

- This text is written in 10 pt

- This text is written in 9 pt

- This text is written in 8 pt

- This text is written in 7 pt

General Presentation Techniques

- Be sure in the beginning that all participants understand the topic, problem and its context
- Present clearly
- Explanation with diagrams is highly desirable
- Suggested time (per slide) is approximately 2-5 minutes
  - Maximum approximately 50 words per slide
  - Seminar participants should have time to read the text on a slide several times

General Presentation Techniques

- Hold a trial presentation before the seminar
- Estimate the required time – there are often false estimations
- Plan the time for questions during the presentation
- Leave time for a subsequent discussion
- Make clear at the end of the talk that the presentation is completed
  - Ask for the questions
- Discuss open questions with all seminar participants